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GRAND RIVER BASIN COORDINATING COMMITTEE DETROIT MI

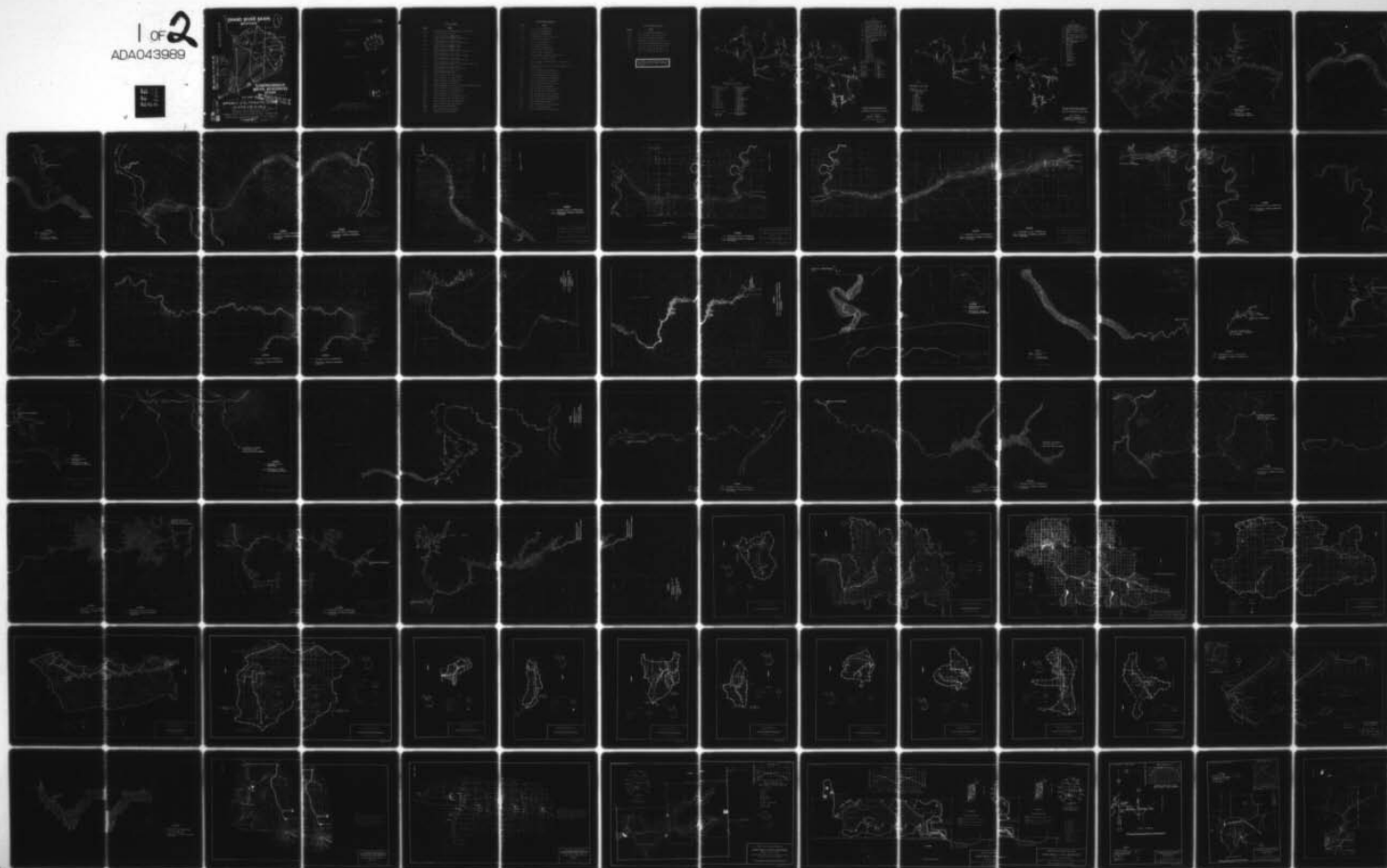
F/G 8/6

GRAND RIVER BASIN MICHIGAN. COMPREHENSIVE WATER RESOURCES STUDY--ETC(U)
AUG 73

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1 OF 2
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GRAND RIVER BASIN MICHIGAN

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APPENDIX Q-ALTERNATIVE PLANS PLATES FOR PLAN A

Prepared Under Supervision of the
GRAND RIVER BASIN COORDINATING COMMITTEE
Chairmanship: U. S. Army Engineer District, Detroit

11 August 1973

410372

JP

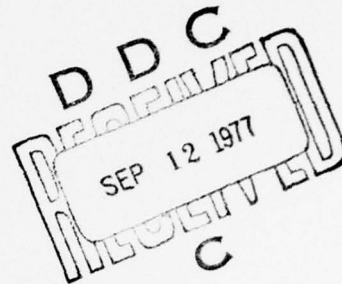


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Grand River Basin Study

APPENDIX Q
ALTERNATIVE PLANS



PLATES FOR PLAN A

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BY	J. J. Sullivan	<input type="checkbox"/>
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Prepared Under Supervision of the
GRAND RIVER BASIN COORDINATING COMMITTEE
Chairmanship: U. S. Army Engineer District, Detroit

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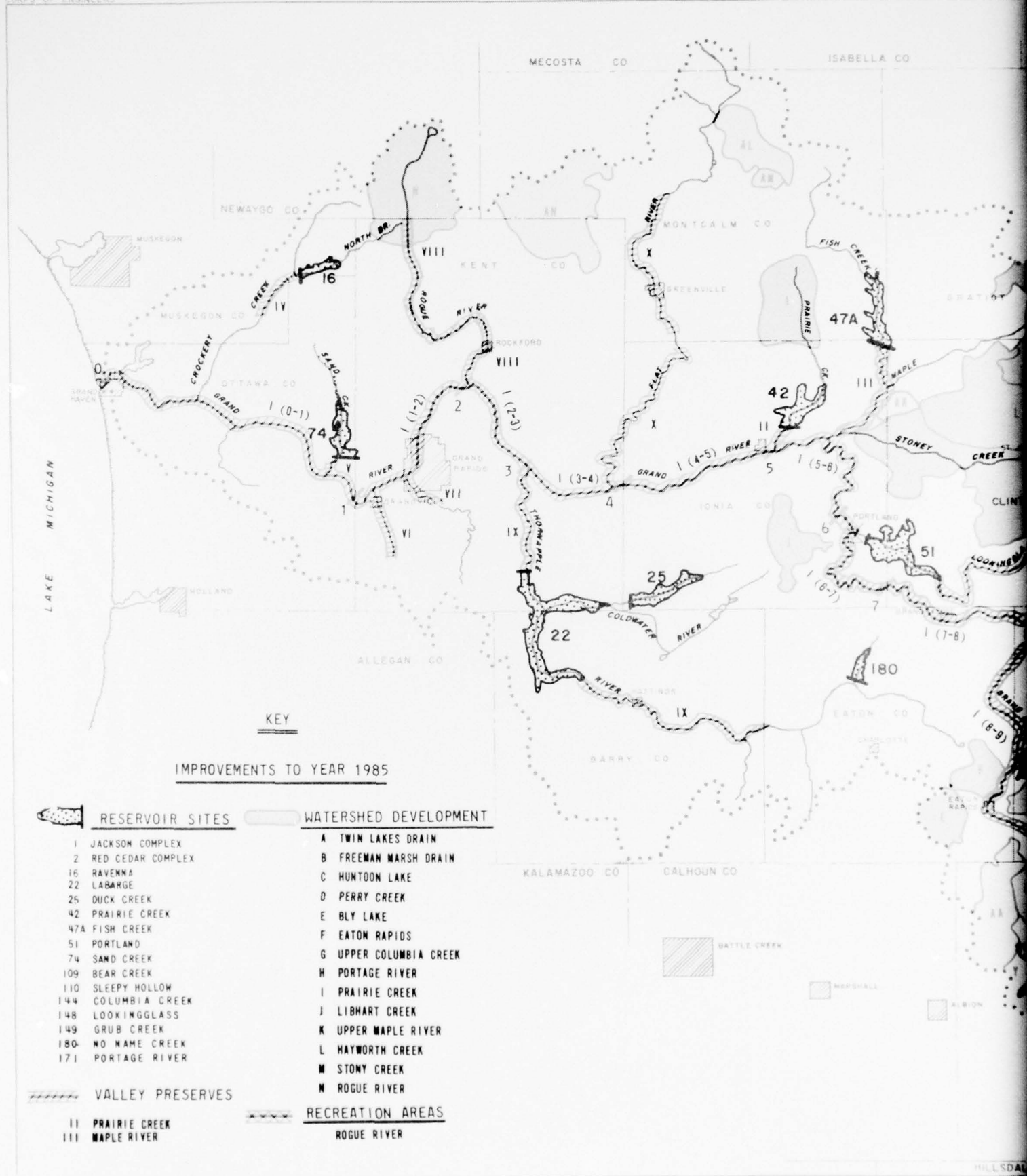
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TO PLAN B.



KEY

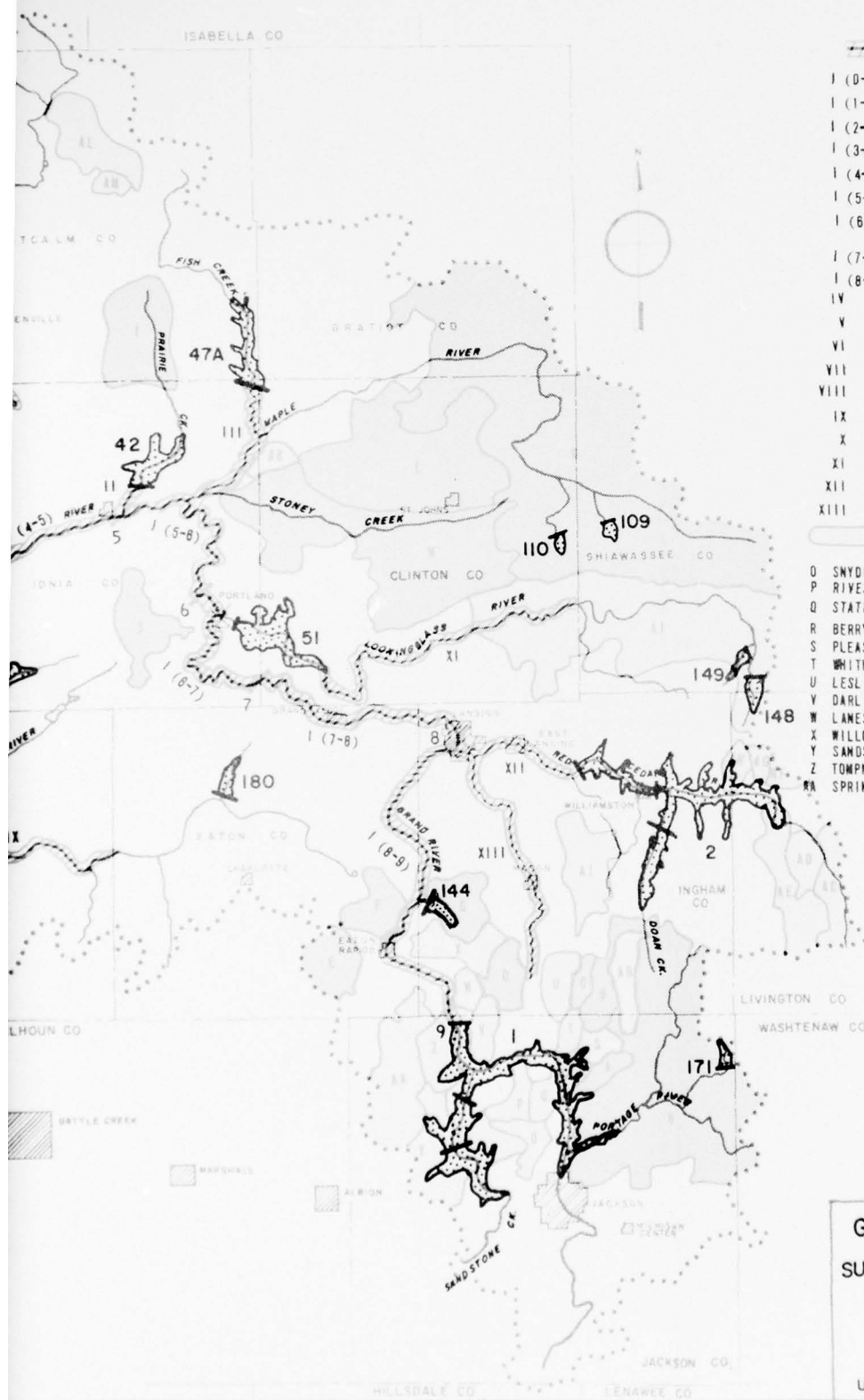
YEAR 1985 TO YEAR 2020

VALLEY PRESERVES

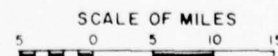
- I (0-1) GRAND HAVEN TO OTTAWA-KENT COUNTY LINE
- I (1-2) OTTAWA-KENT COUNTY LINE TO ROGUE RIVER
- I (2-3) ROGUE RIVER TO THORNAPPLE RIVER
- I (3-4) THORNAPPLE RIVER TO KENT-IONIA COUNTY LINE
- I (4-5) KENT-IONIA COUNTY LINE TO PRAIRIE CREEK
- I (5-6) PRAIRIE CREEK TO PORTLAND MUNICIPAL DAM
- I (6-7) PORTLAND MUNICIPAL DAM TO IONIA-CLINTON COUNTY LINE
- I (7-8) IONIA-CLINTON COUNTY LINE TO LANSING
- I (8-9) LANSING TO ONONDAGA DAM
- IV CROCKERY CREEK
- V SAND CREEK
- VI BUCK CREEK
- VII PLASTER CREEK
- VIII ROGUE RIVER
- IX THORNAPPLE RIVER
- X FLAT RIVER
- XI LOOKINGGLASS RIVER
- XII RED CEDAR RIVER
- XIII SYCAMORE CREEK

WATERSHED DEVELOPMENT

- | | |
|----------------------------|-----------------------|
| O SNYDER AND WHEELER DRAIN | AB BATEESE CREEK |
| P RIVES JUNCTION | AC UPPER CEDAR RIVER |
| Q STATE | AD WINEGAR |
| R BERRY LAKE | AE MIDDLE CEDAR RIVER |
| S PLEASANT LAKE | AF RANDAL |
| T WHITNEY DRAIN | AG GRANT |
| U LESLIE | AH BROWN |
| Y DARLING CHRISTIE DRAIN | AI MUD CREEK |
| W LANES LAKE | AJ LOOKINGGLASS RIVER |
| X WILLOW CREEK | AK PEWAMO |
| Y SANDSTONE CREEK | AL PENNY CREEK |
| Z TOMPKINS | AM HENNINGWAY LAKE |
| RA SPRING BROOK | AN BLACK CREEK |
| | (Montcalm & Kent) |

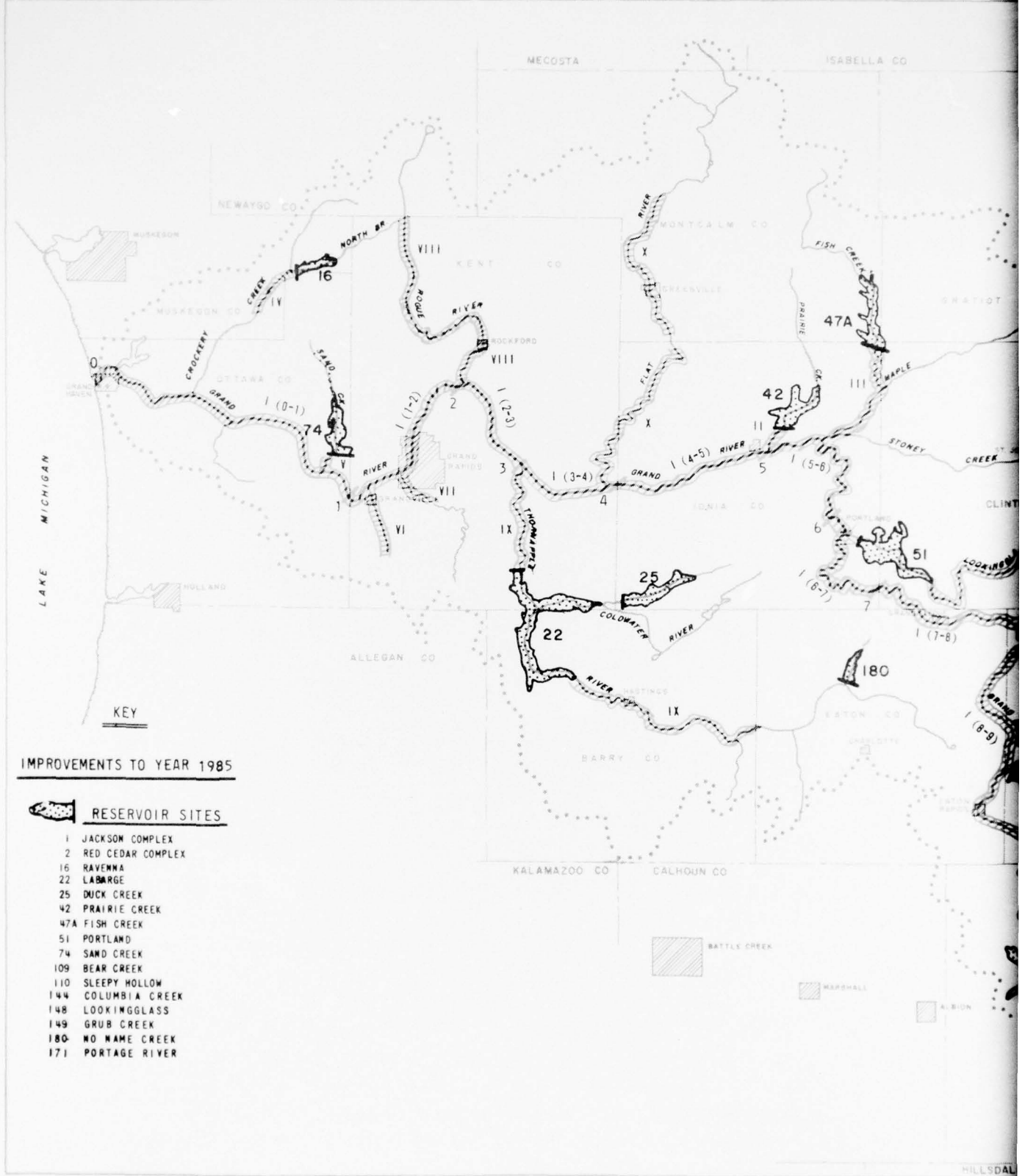


GRAND RIVER BASIN, MICH.
SUGGESTED PLAN TO YEAR 2020



U.S. ARMY ENGINEER DISTRICT, DETROIT

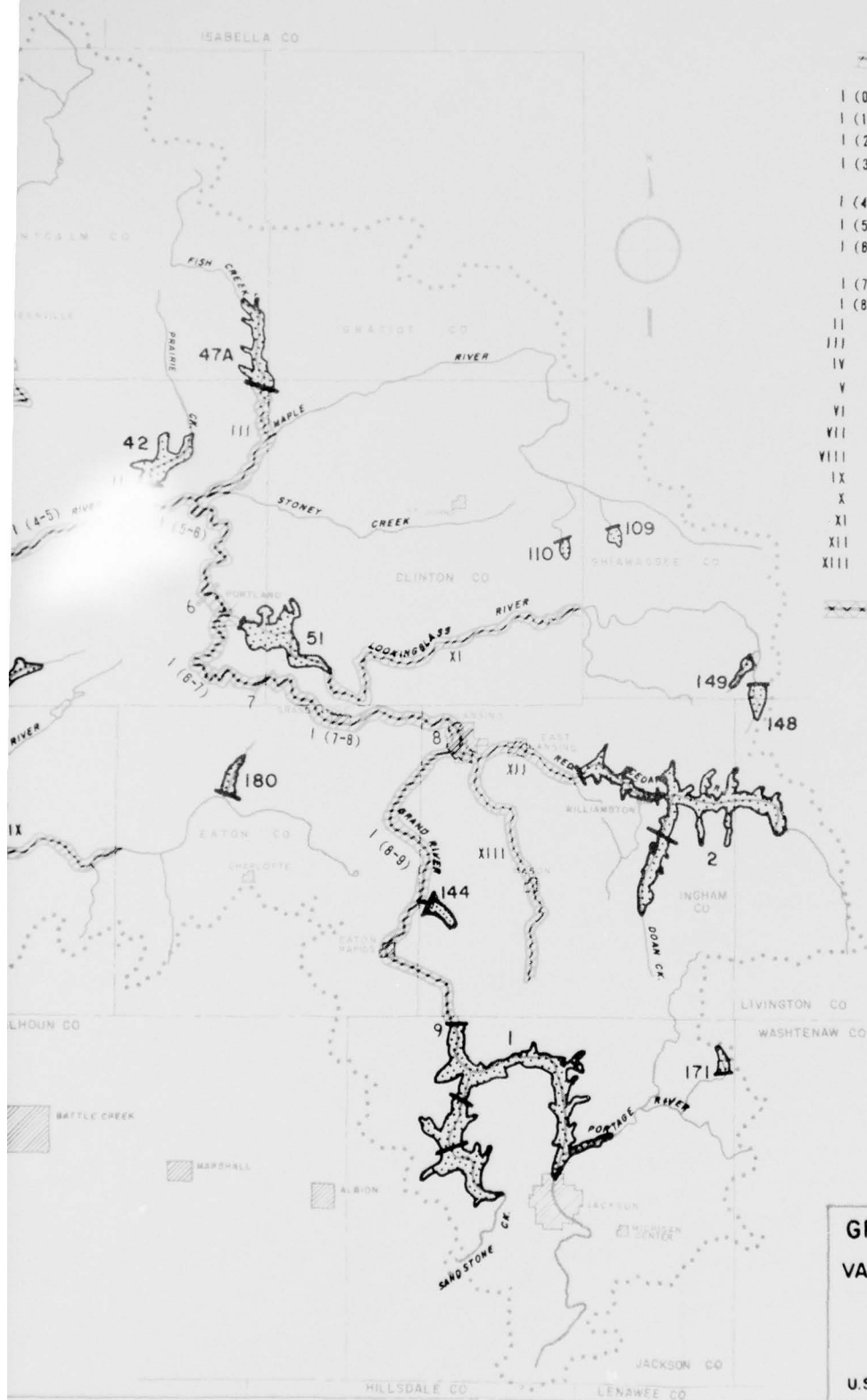
PLATE Q-1



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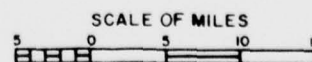
VALLEY PRESERVES

- I (0-1) GRAND HAVEN TO OTTAWA-KENT COUNTY LINE
- I (1-2) OTTAWA-KENT COUNTY LINE TO ROGUE RIVER
- I (2-3) ROGUE RIVER TO THORNAPPLE RIVER
- I (3-4) THORNAPPLE RIVER TO KENT-IONIA COUNTY LINE
- I (4-5) KENT-IONIA COUNTY LINE TO PRAIRIE CREEK
- I (5-6) PRAIRIE CREEK TO PORTLAND MUNICIPAL DAM
- I (6-7) PORTLAND MUNICIPAL DAM TO IONIA CLINTON COUNTY LINE
- I (7-8) IONIA-CLINTON COUNTY LINE TO LANSING
- I (8-9) LANSING TO OMONDAGA DAM
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- III MAPLE RIVER
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- V SAND CREEK
- VI BUCK CREEK
- VII PLASTER CREEK
- VIII ROGUE RIVER
- IX THORNAPPLE RIVER
- X FLAT RIVER
- XI LOOKINGGLASS RIVER
- XII RED CEDAR RIVER
- XIII SYCAMORE CREEK

RECREATION AREAS
ROGUE RIVER

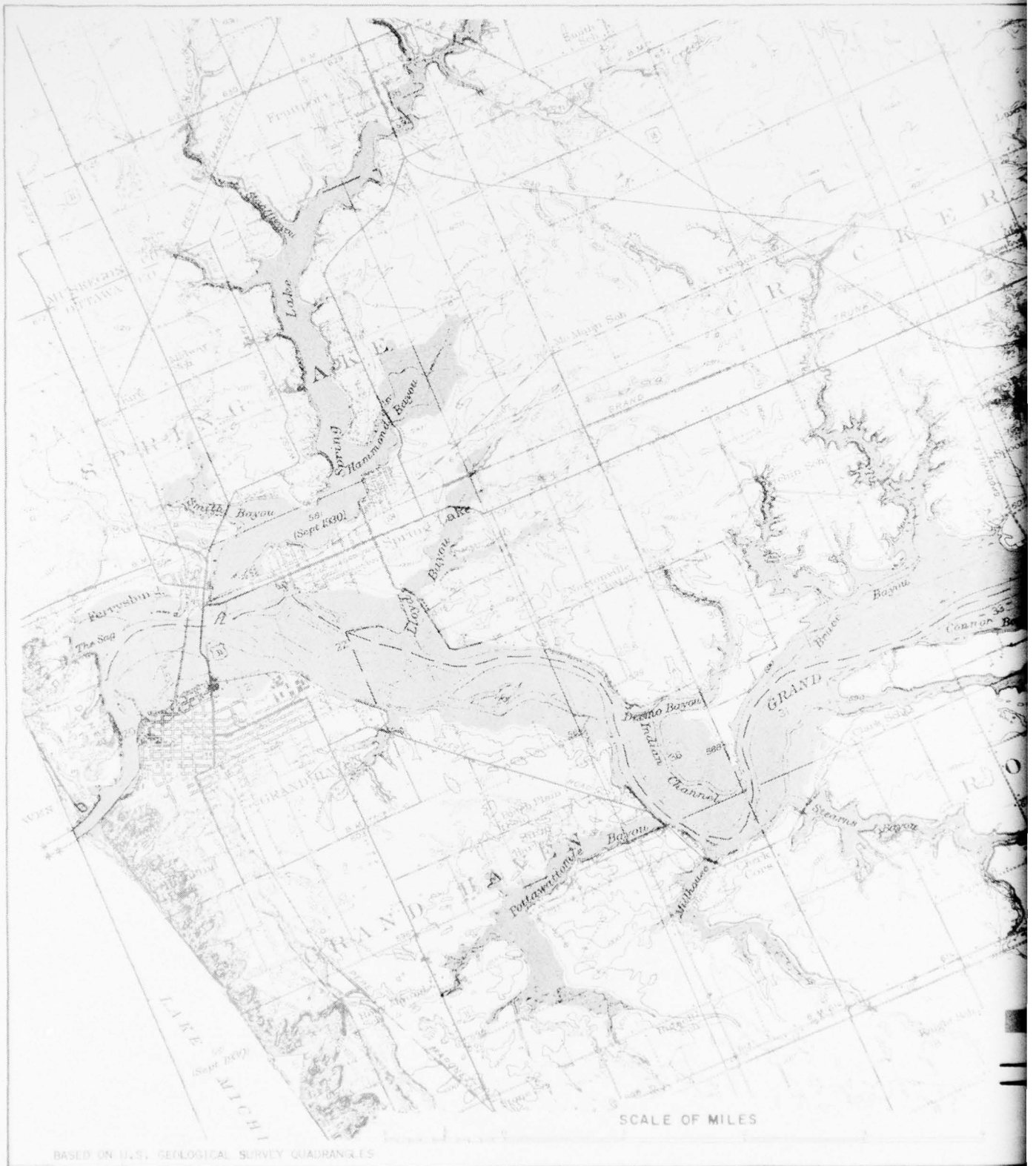
GRAND RIVER BASIN, MICH

VALLEY PRESERVE INDEX MAP



U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-2





LEGEND

- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN
 GRAND RIVER VALLEY PRESERVE
 REACH I (G-1)
 GRAND HAVEN TO OTTAWA-KENT
 COUNTY LINE

U. S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-3a

SCALE OF MILES

MATCH LINE

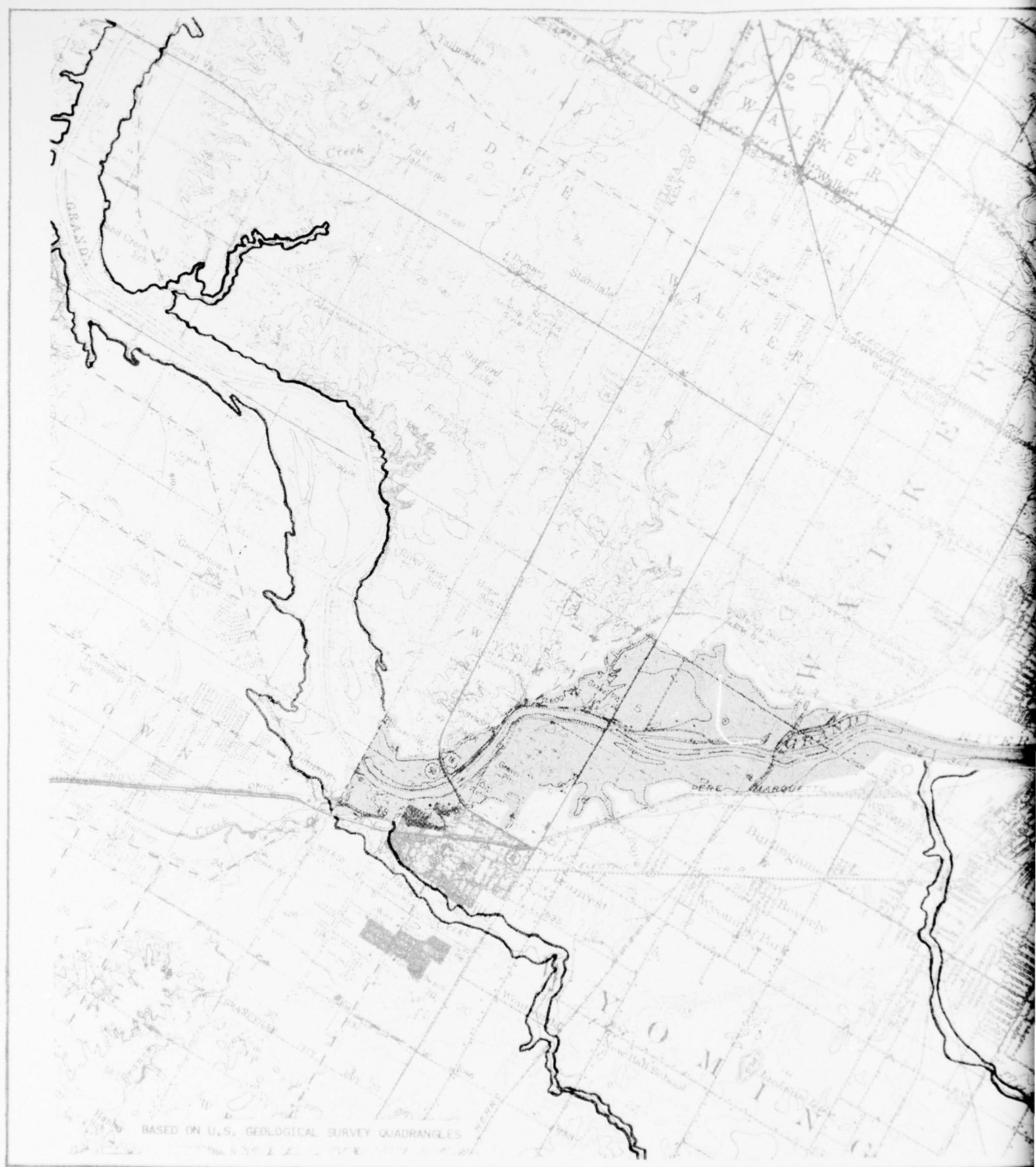


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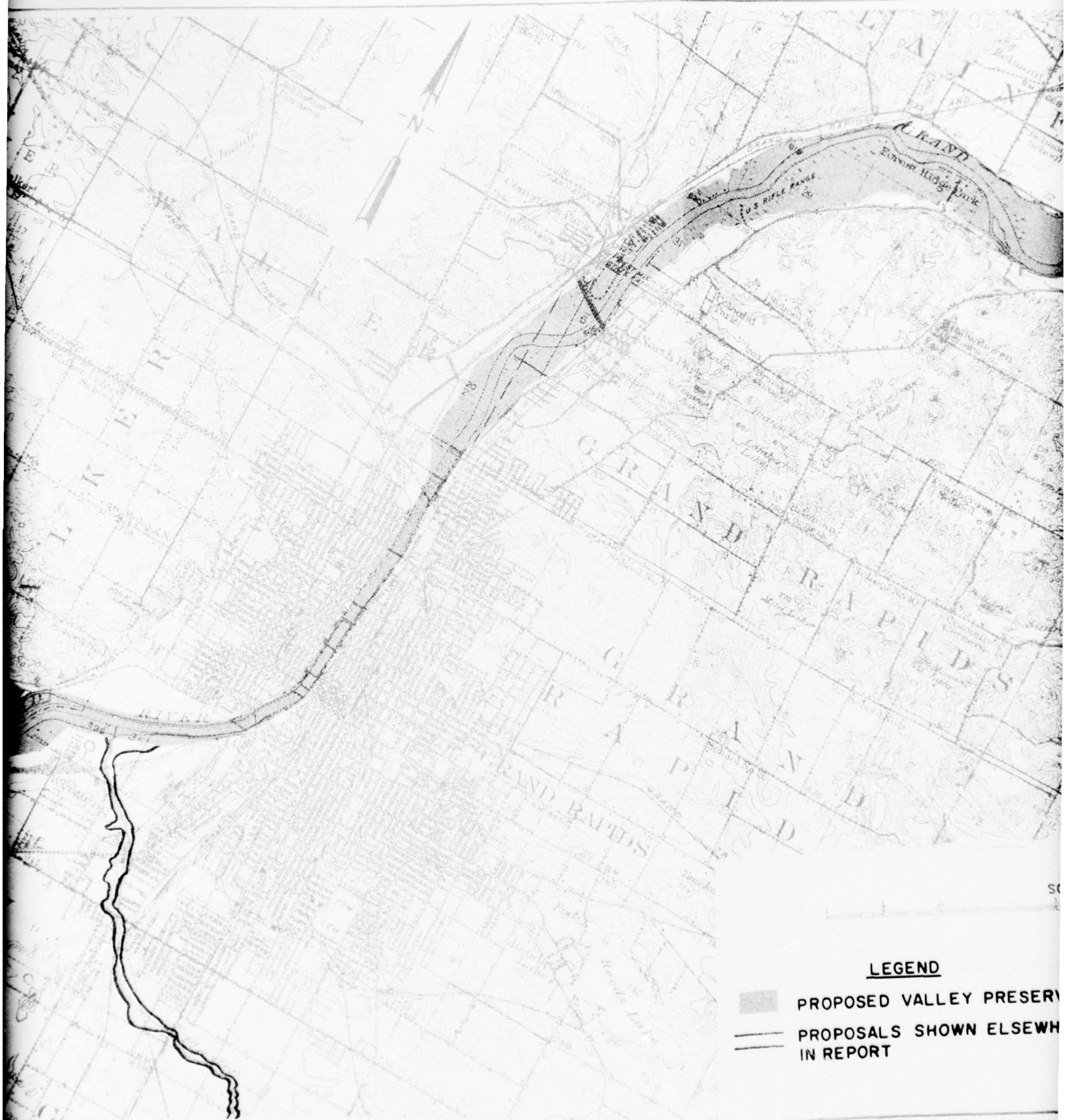
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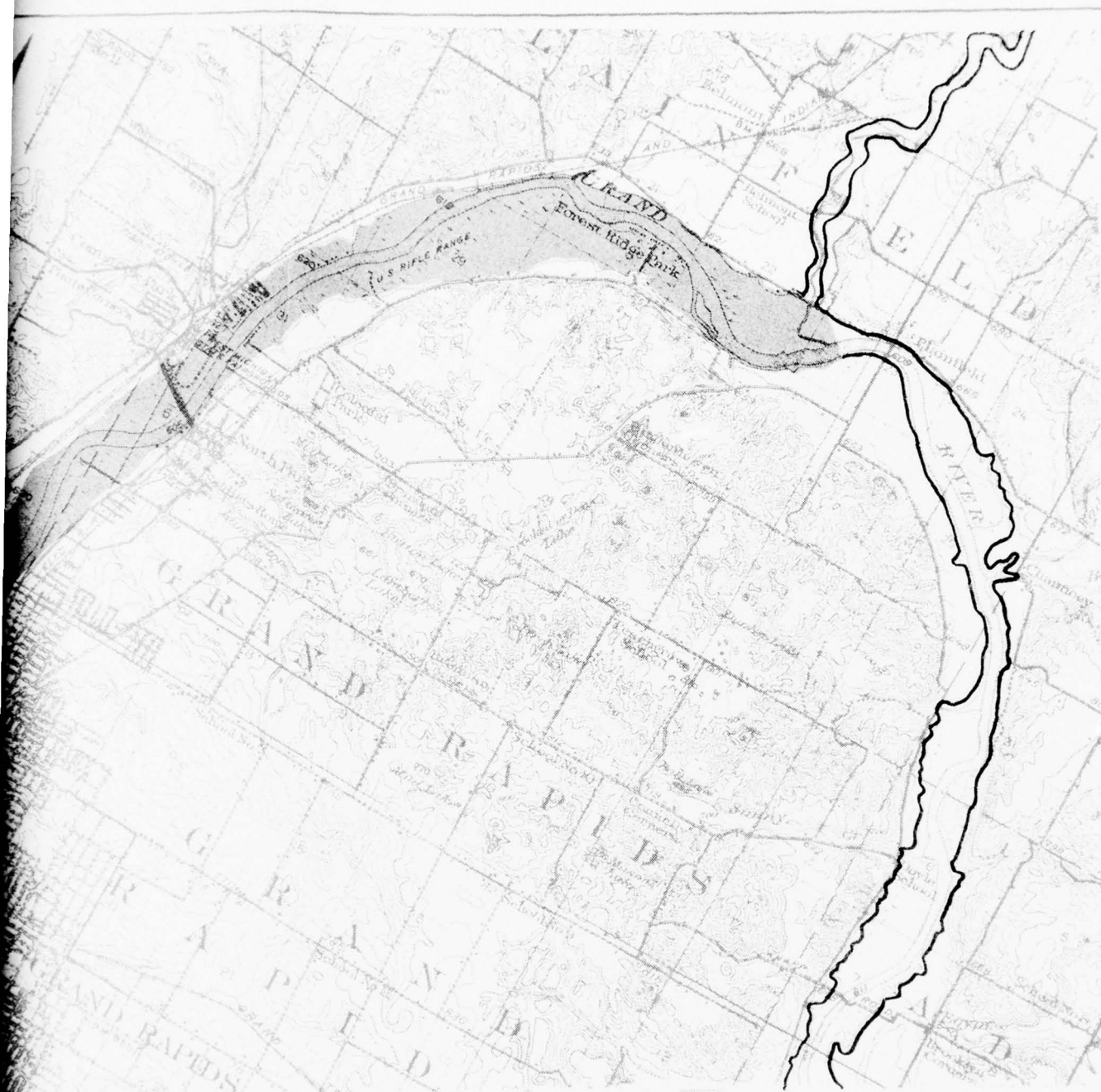


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LEGEND

-  PROPOSED VALLEY PRESERVATION
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

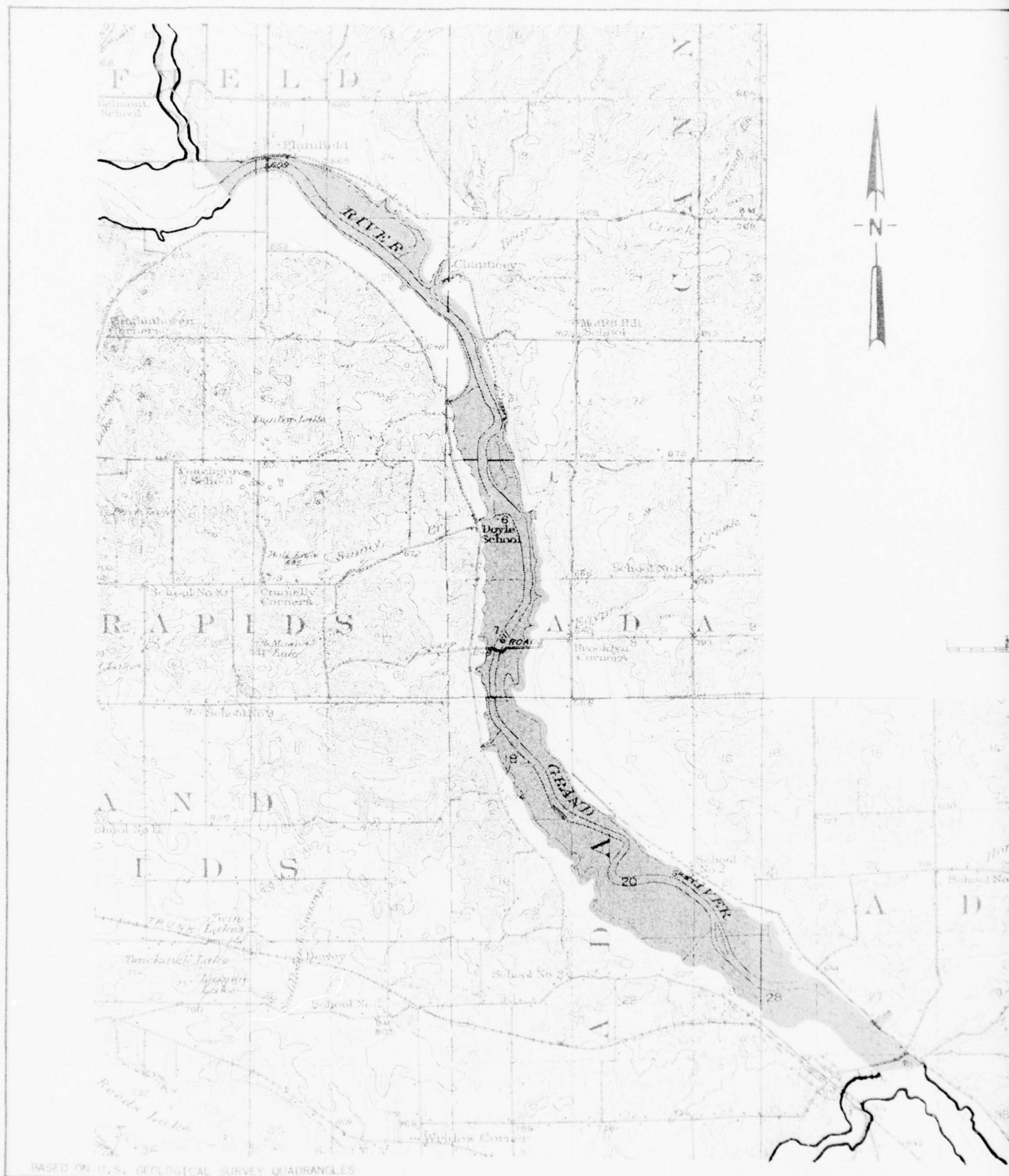


SCALE OF MILES

LEGEND

-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT



GRAND RIVER BASIN, MICHIGAN
GRAND RIVER VALLEY PRESERVE
REACH 1 (1-2)
OTTAWA-KENT COUNTY LINE TO
ROGUE RIVER
U.S. ARMY ENGINEER DISTRICT, DETROIT





SCALE OF MILES

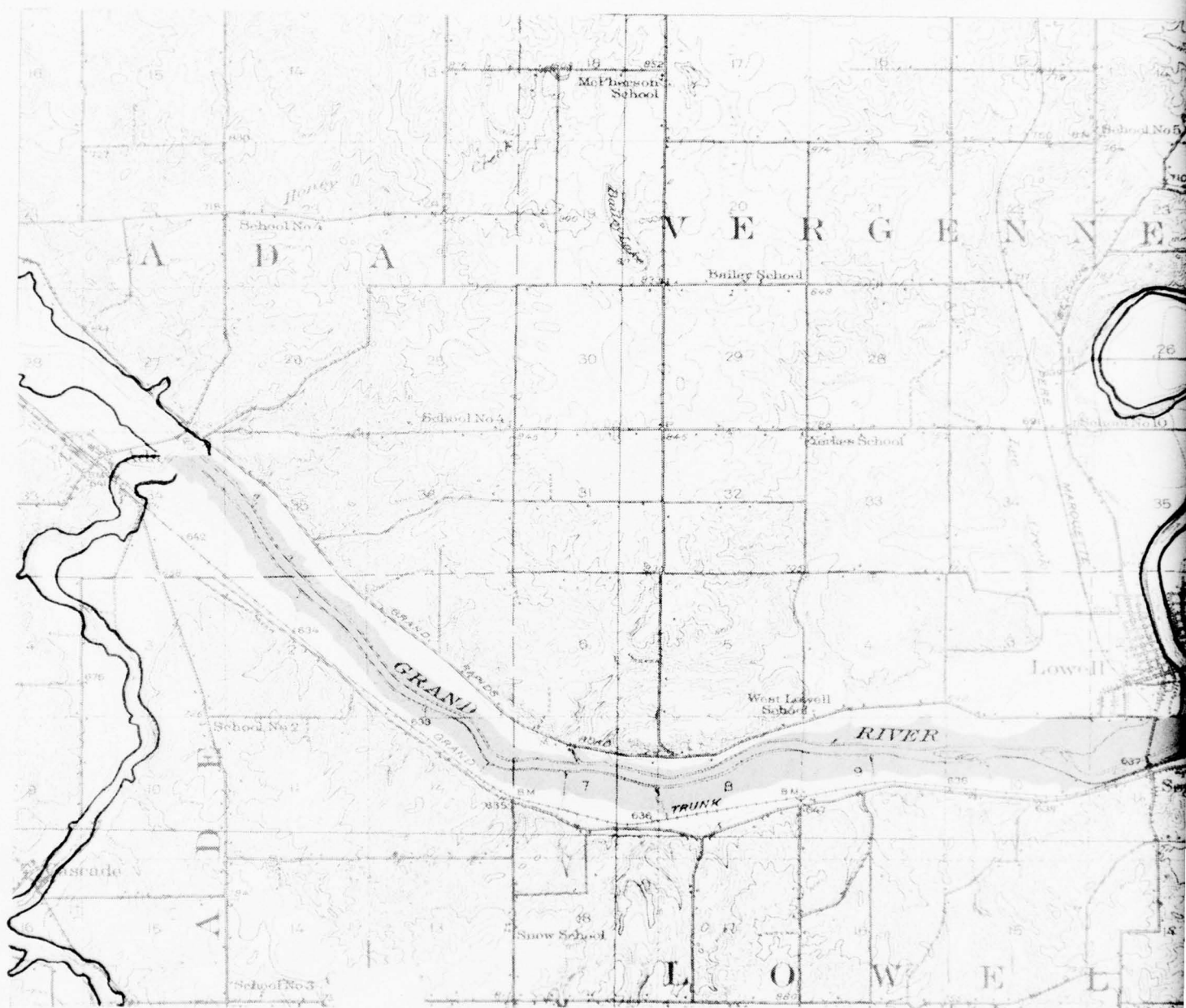
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-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN
GRAND RIVER VALLEY PRESERVE
REACH 1 (2-3)
ROGUE RIVER TO THORNAPPLE RIVER

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q- 5

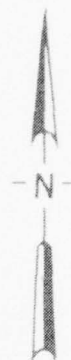
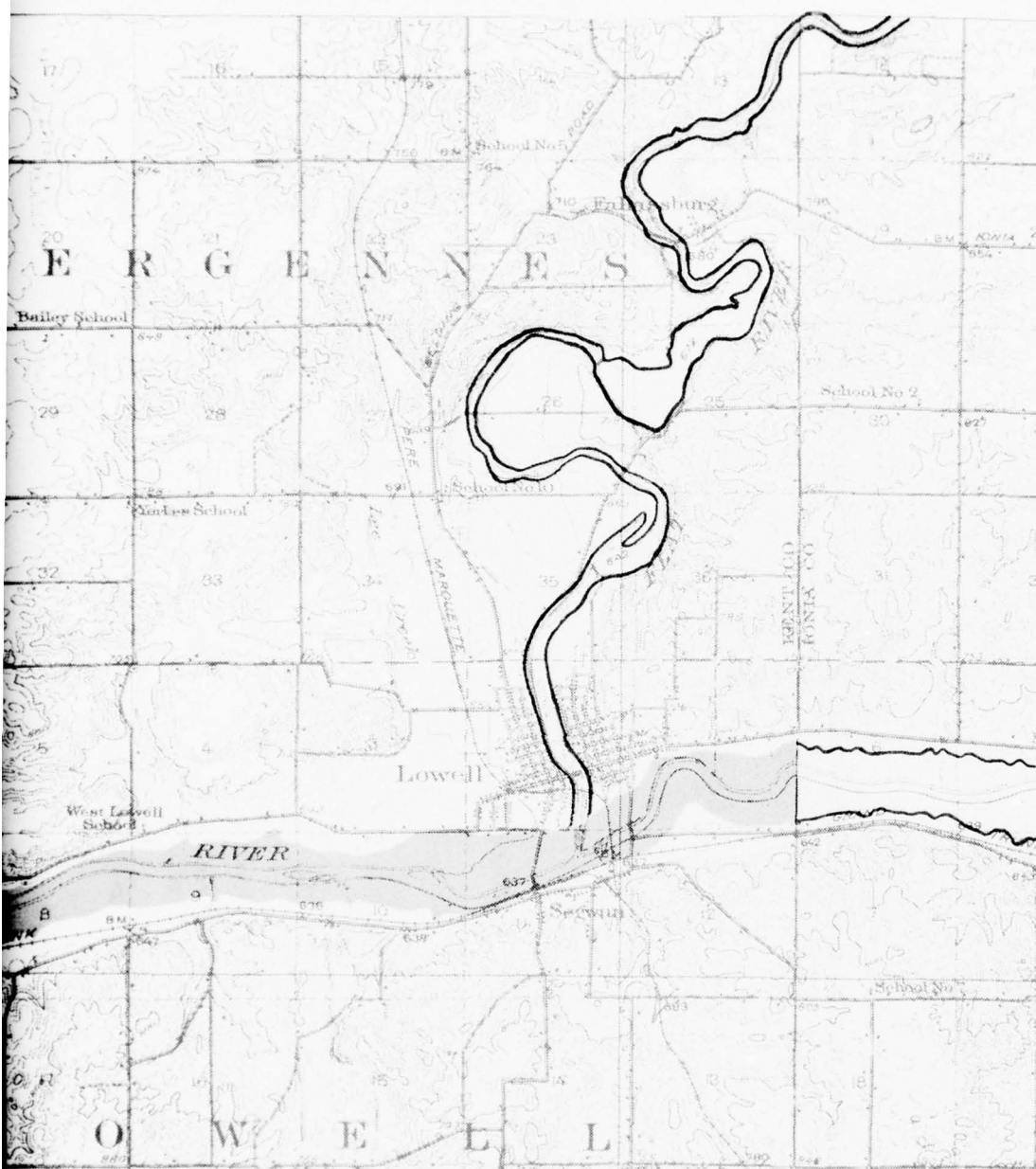


SCALE OF MILES



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES

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 PROPOSED
 PROPOSALS
 IN REPORT



SCALE OF MILES

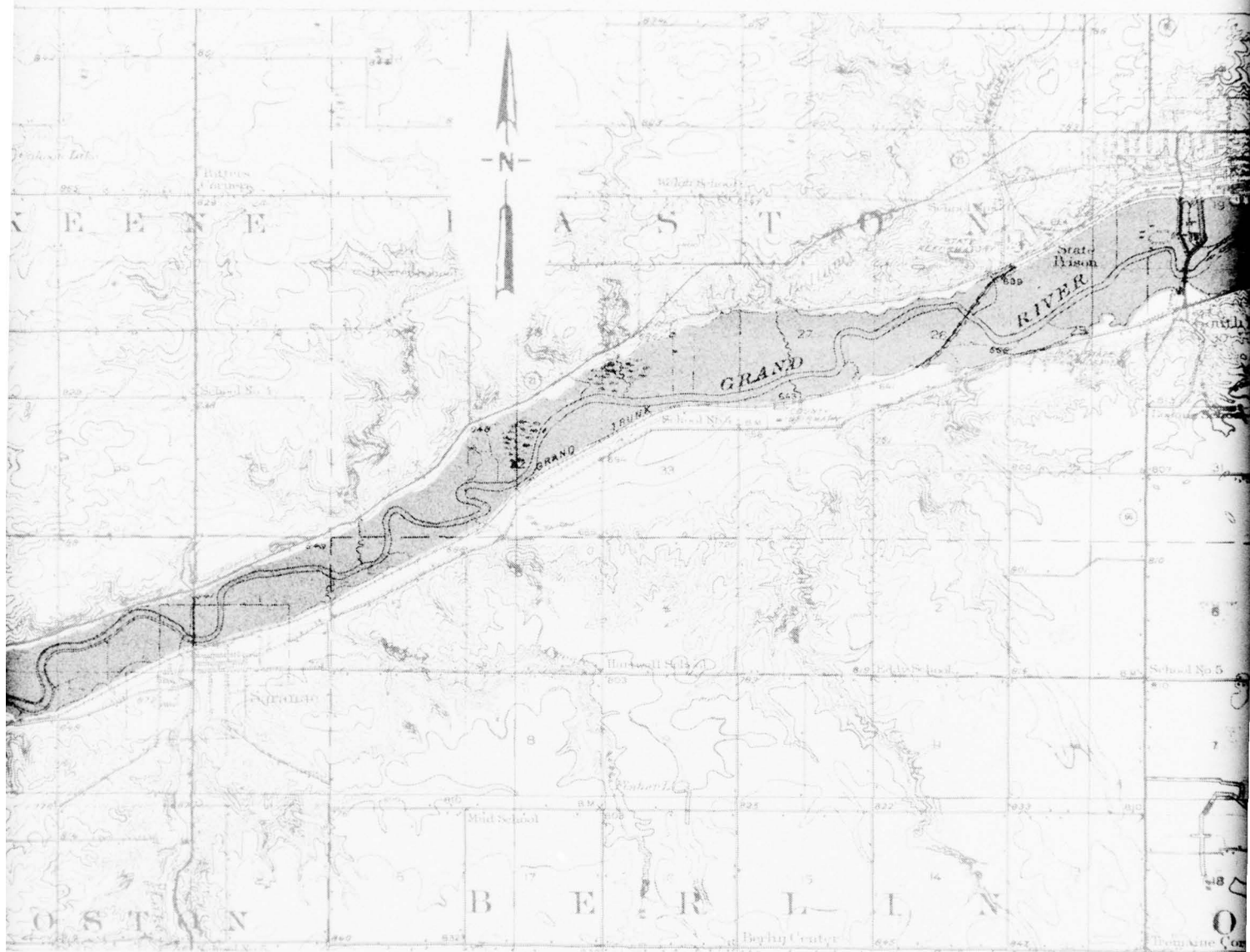
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- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN
 GRAND RIVER VALLEY PRESERVE
 REACH 1 (3-4)
 THORNAPPLE RIVER TO KENT-IONIA
 COUNTY LINE
 U.S. ARMY ENGINEER DISTRICT, DETROIT



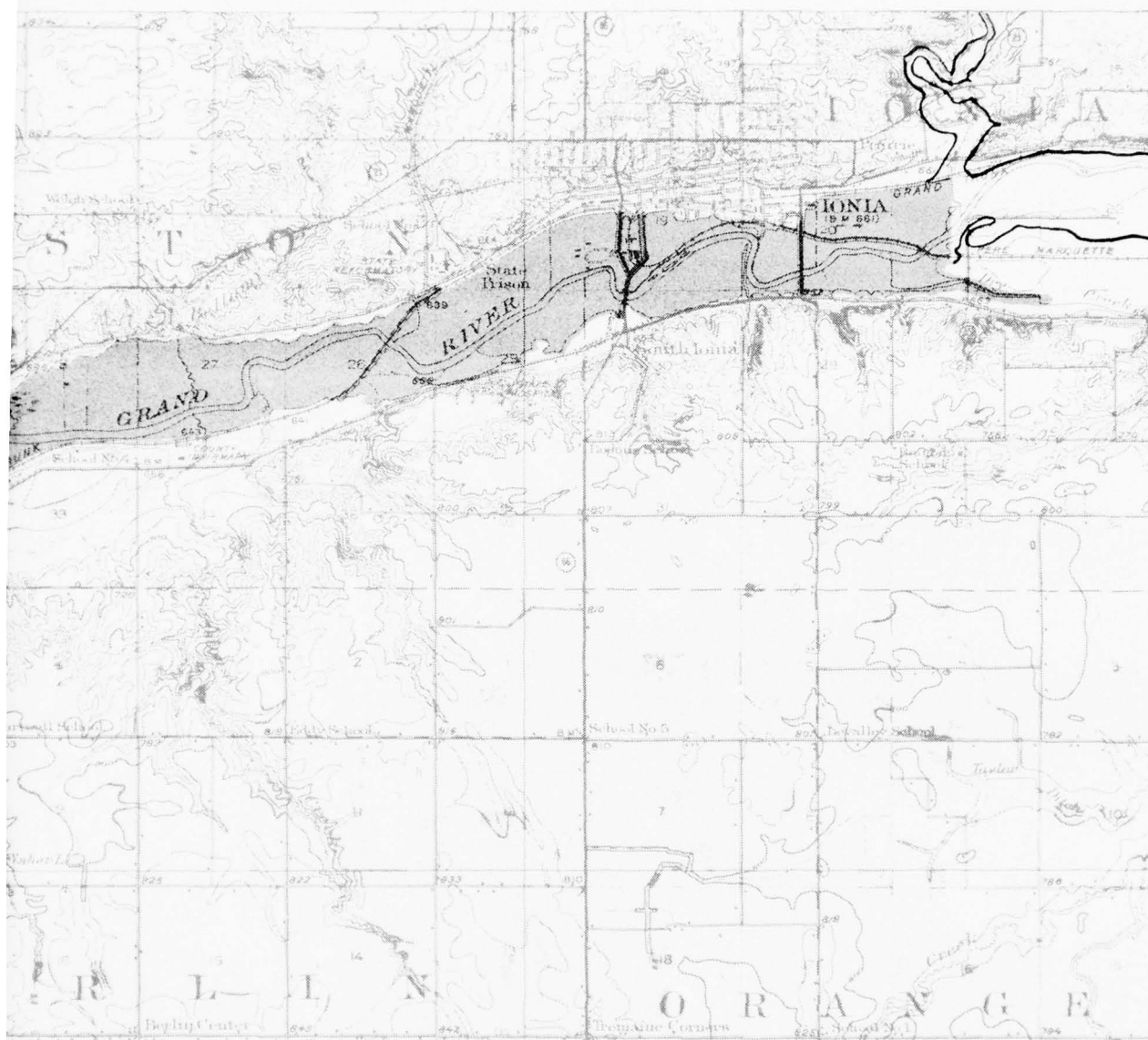
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


SCALE OF MILES

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- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

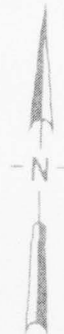
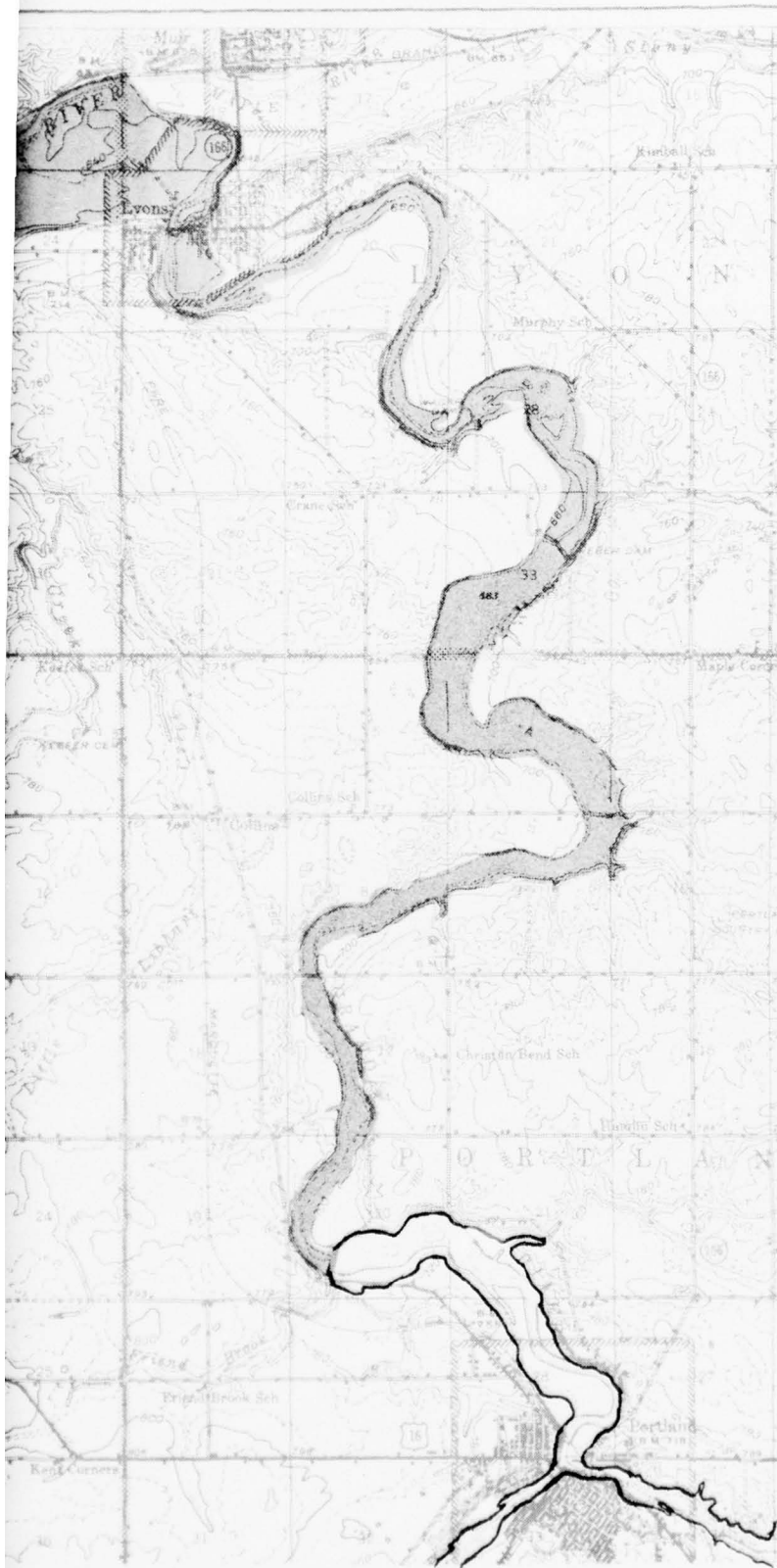
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-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE
IN REPORT



GRAND RIVER BASIN, MICHIGAN
GRAND RIVER VALLEY PRESERVE
REACH 1(4-5)
KENT-IONIA COUNTY LINE TO
PRAIRIE CREEK
U.S. ARMY ENGINEER DISTRICT, DETROIT



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



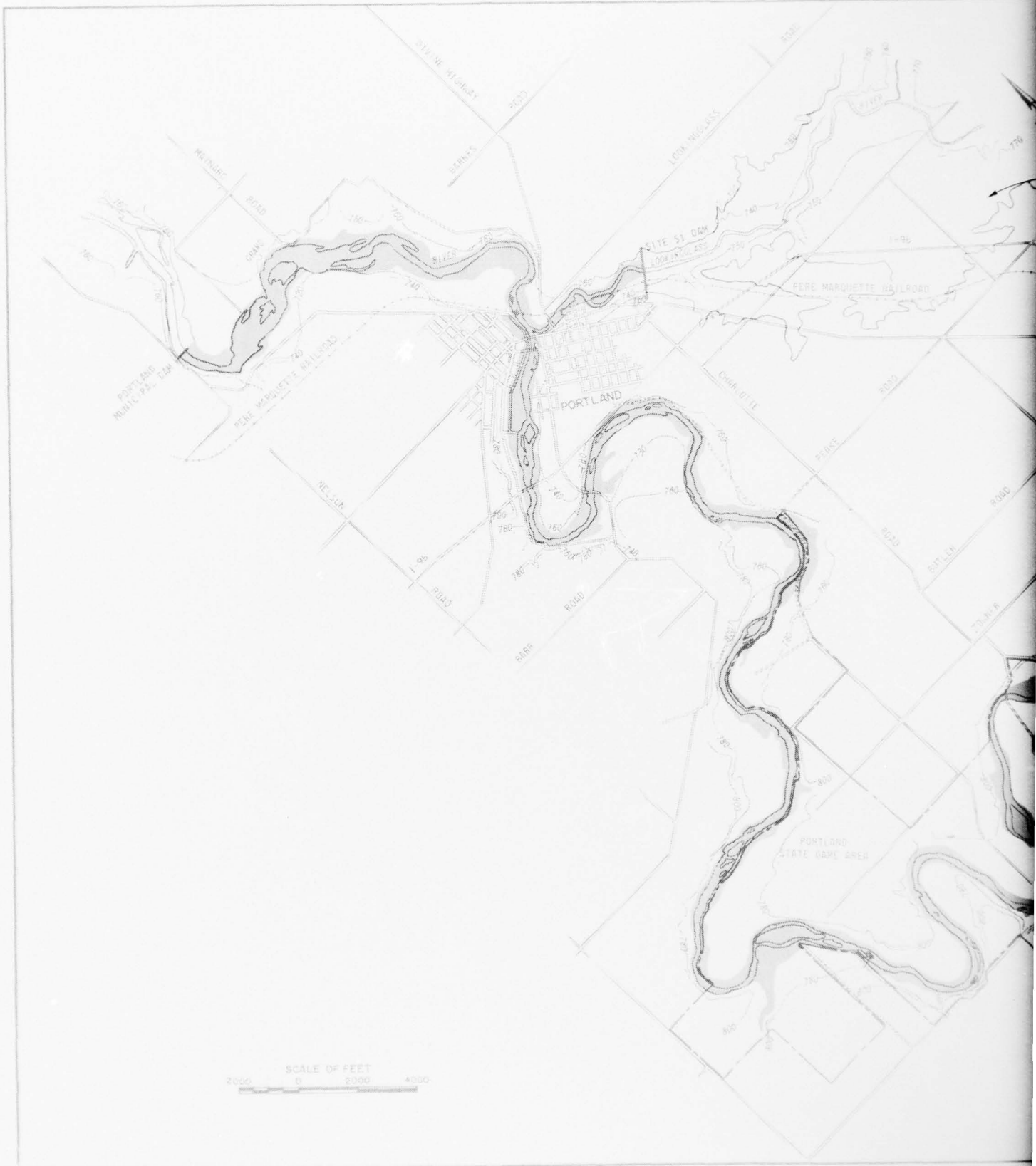
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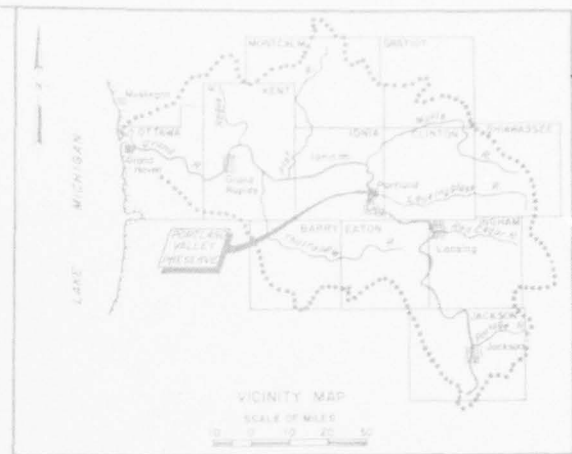
-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

SCALE OF MILES



GRAND RIVER BASIN, MICHIGAN
 GRAND RIVER VALLEY PRESERVE
 REACH 1(5-6)
 PRAIRIE CREEK TO PORTLAND
 MUNICIPAL DAM
 U.S. ARMY ENGINEER DISTRICT, DETROIT

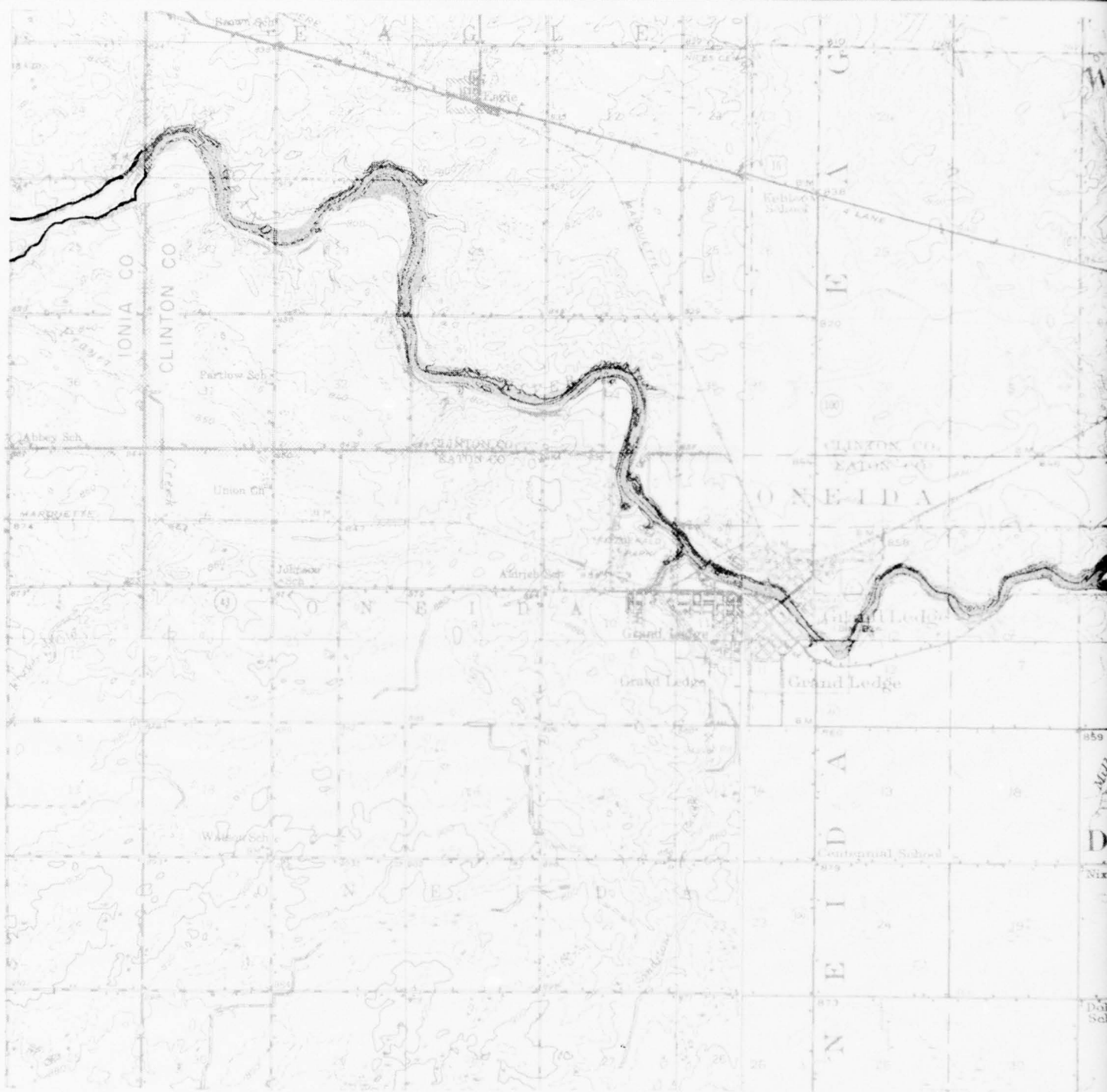




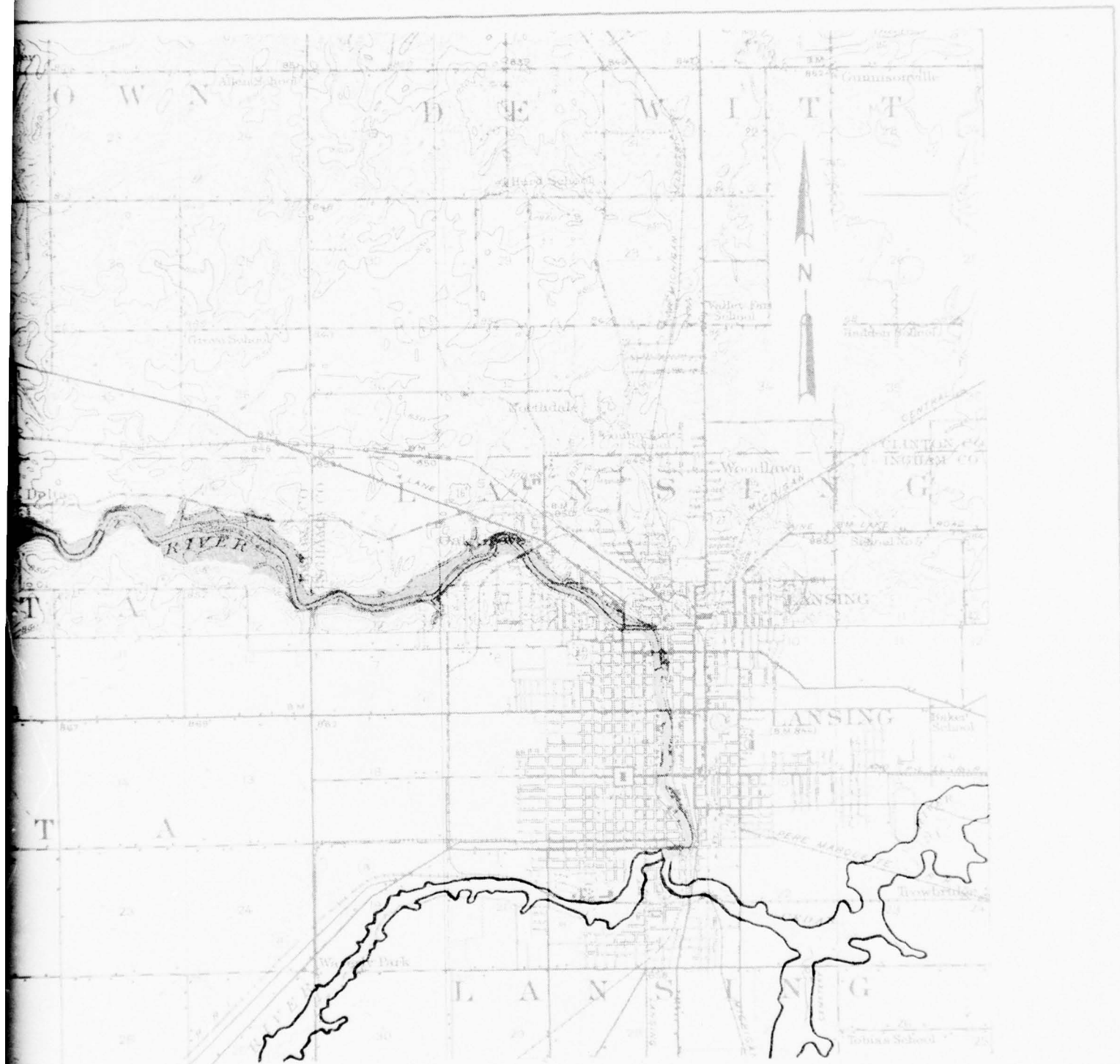
LEGEND

- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN
 GRAND RIVER VALLEY PRESERVE
 REACH I (6-7)
 PORTLAND MUNICIPAL DAM TO IONIA-CLINTON
 COUNTY LINE
 U.S. ARMY ENGINEER DISTRICT, DETROIT



SCALE OF MILES



LEGEND

- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN

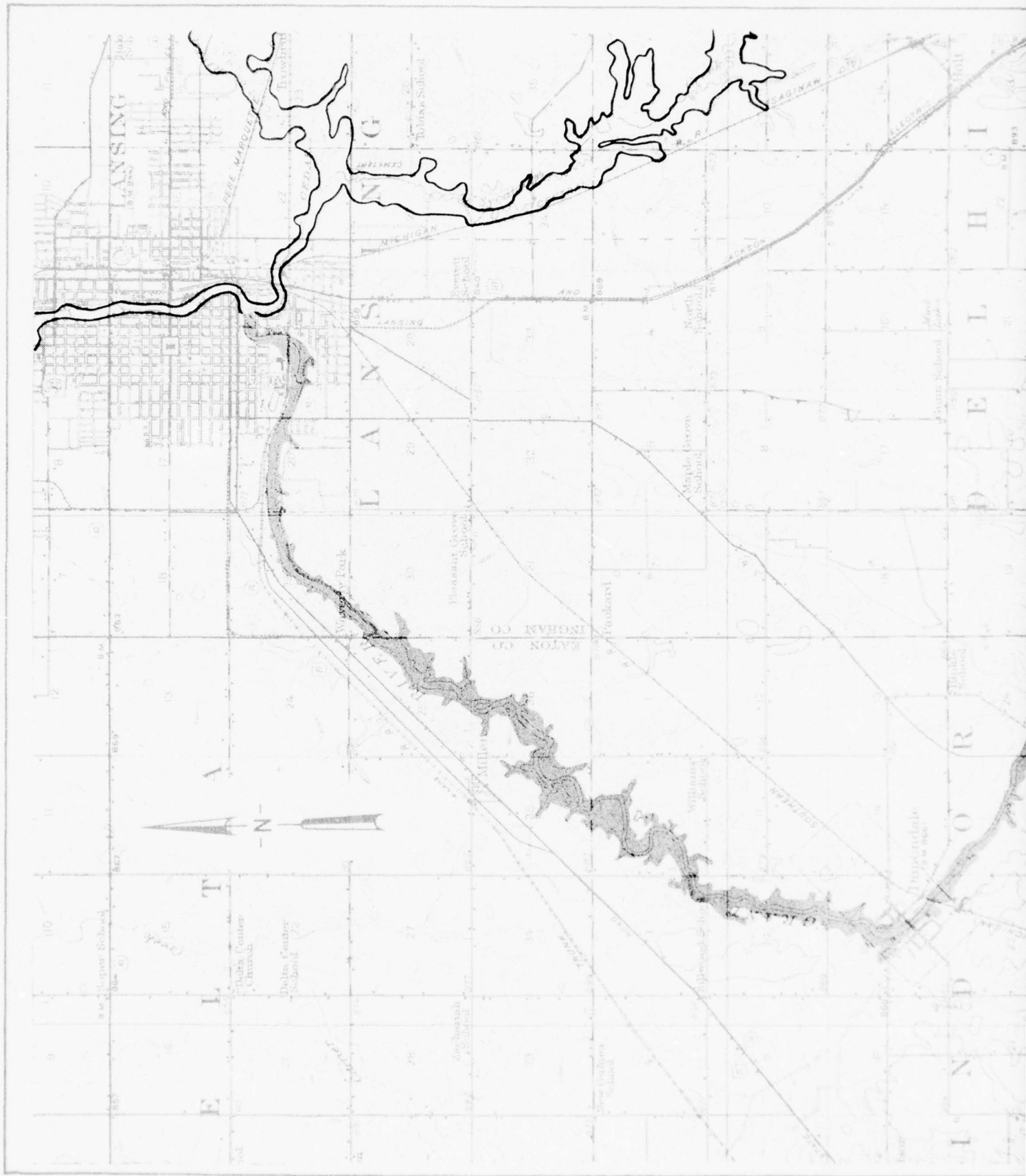
GRAND RIVER VALLEY PRESERVE

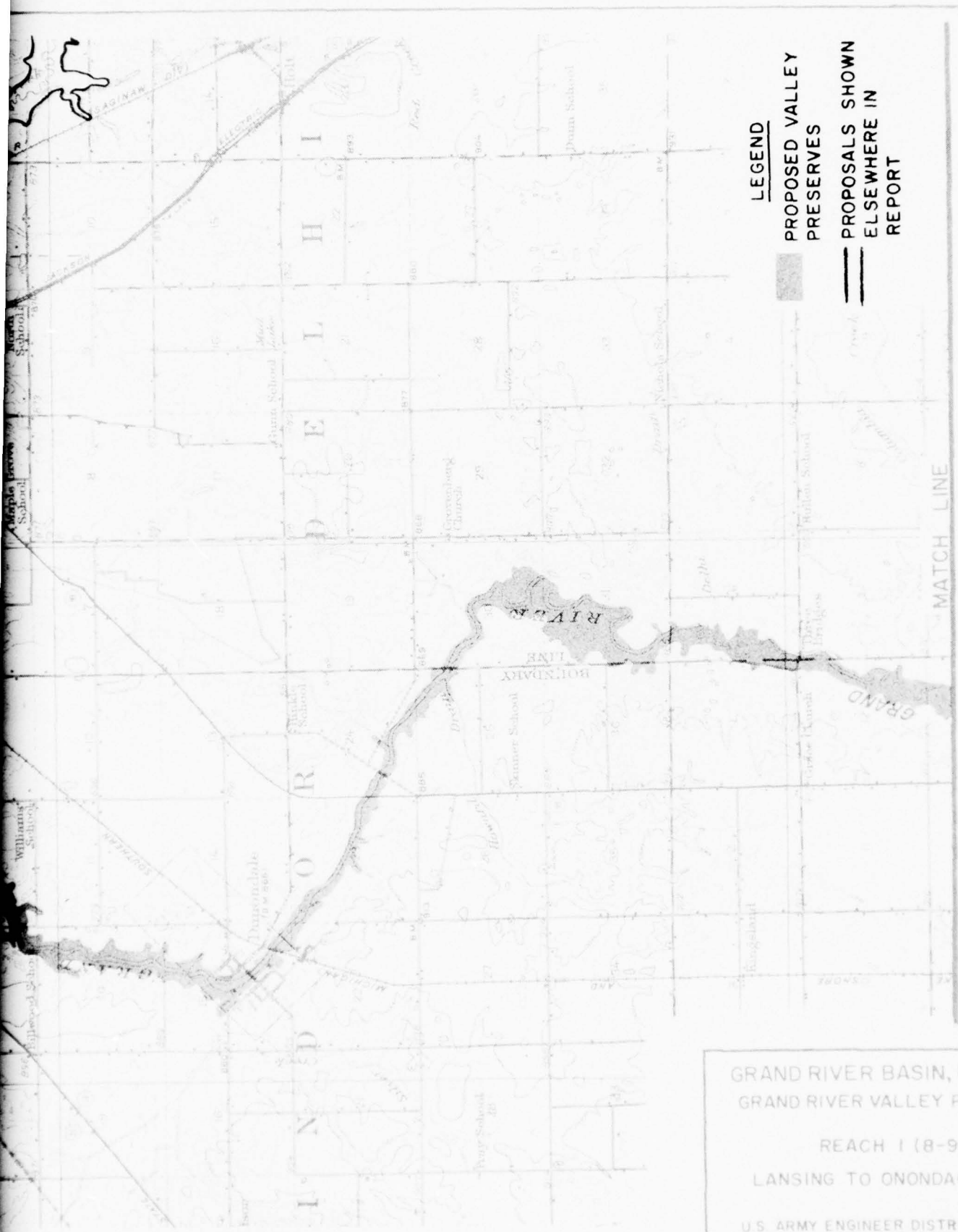
REACH 1 (7-8)

IONIA-CLINTON COUNTY LINE TO LANSING

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-10





LEGEND
PROPOSED VALLEY PRESERVES
PROPOSALS SHOWN ELSEWHERE IN REPORT

SCALE OF MILES

GRAND RIVER BASIN, MICHIGAN
 GRAND RIVER VALLEY PRESERVE

REACH I (8-9)

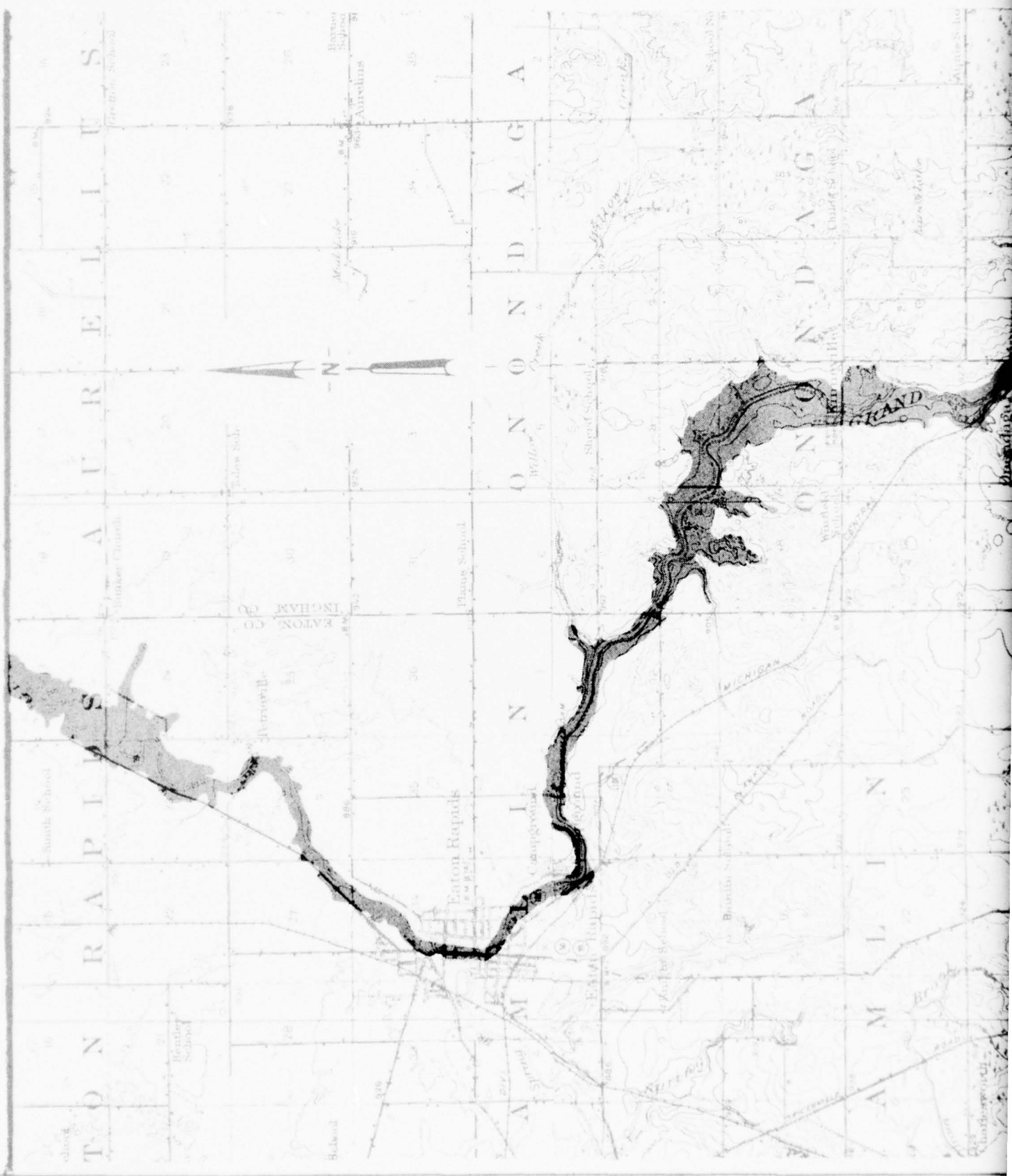
LANSING TO ONONDAGA DAM

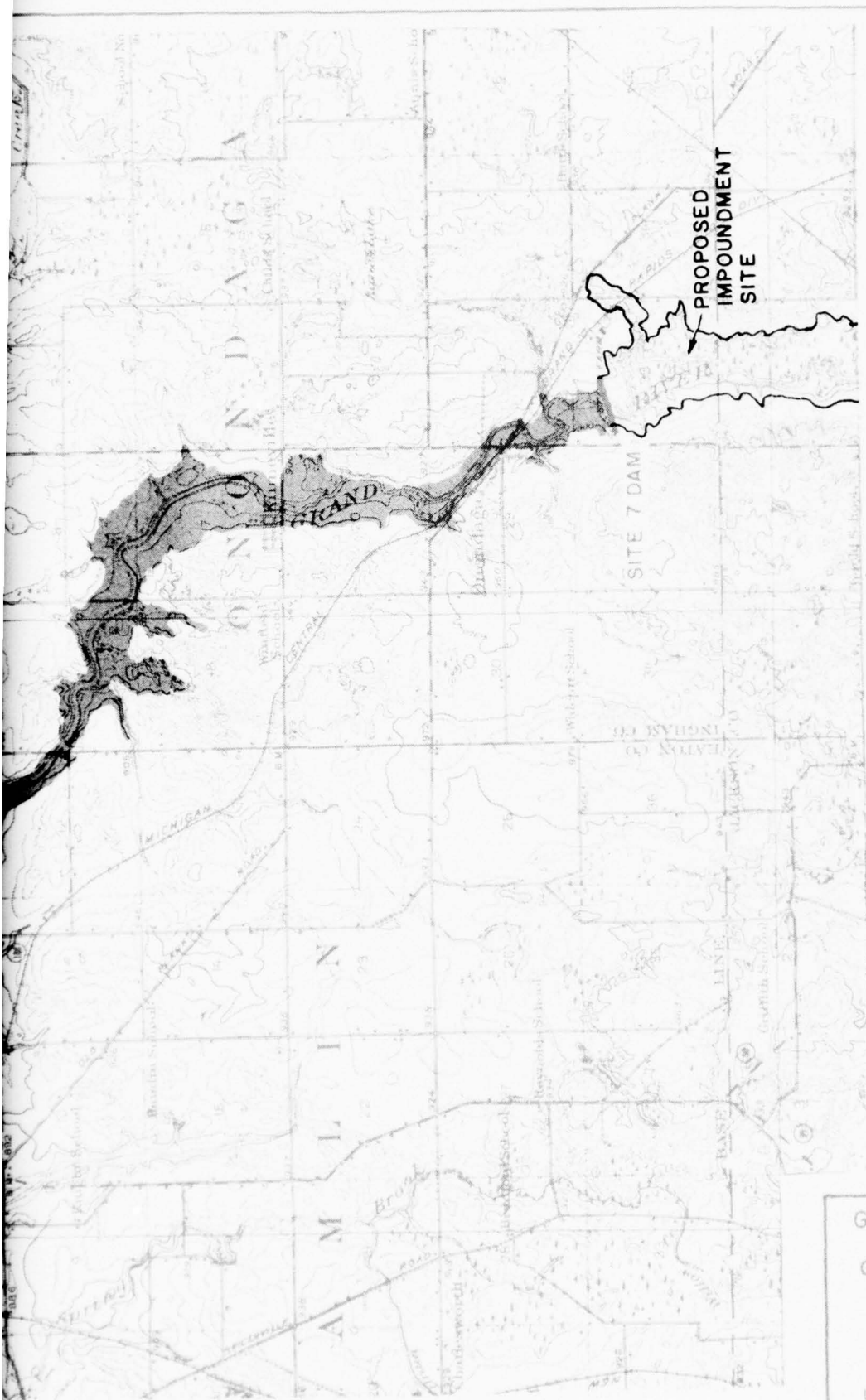
U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-11a

2

MATCH LINE





SCALE OF MILES

LEGEND

- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN

GRAND RIVER VALLEY PRESERVE

REACH 1(8-9)

LANSING TO ONONDAGA DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT

BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLE

PLATE Q-11b

PROPOSED IMPOUNDMENT
SITE

SITE 42 DAM

KELLOGG RD.

M-21

760

720

680

PRAIRIE

PRAIRIE CR. RD.

HILCREST RD.

M-21

CREEK

680

680

720

760

780

CEMETERY

740

POND

OLD DAM

GRAND TRUNK W

RIVER

CITY OF IONIA

IONIA CITY PARK

Scale of Feet

500 0 1000

PERE MAR

635

630

635

635

640

640

635

680

720

720

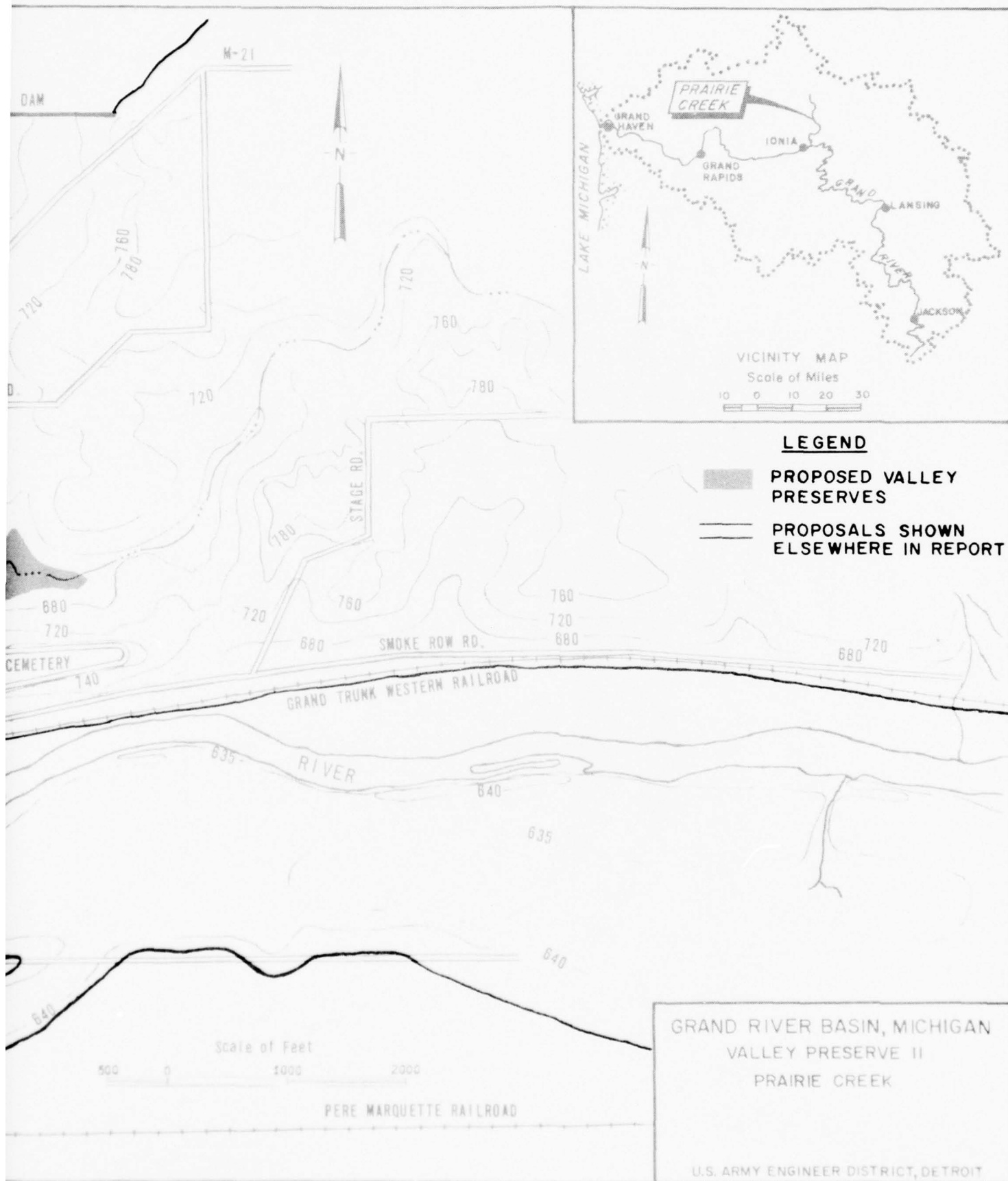
760

780

760

N

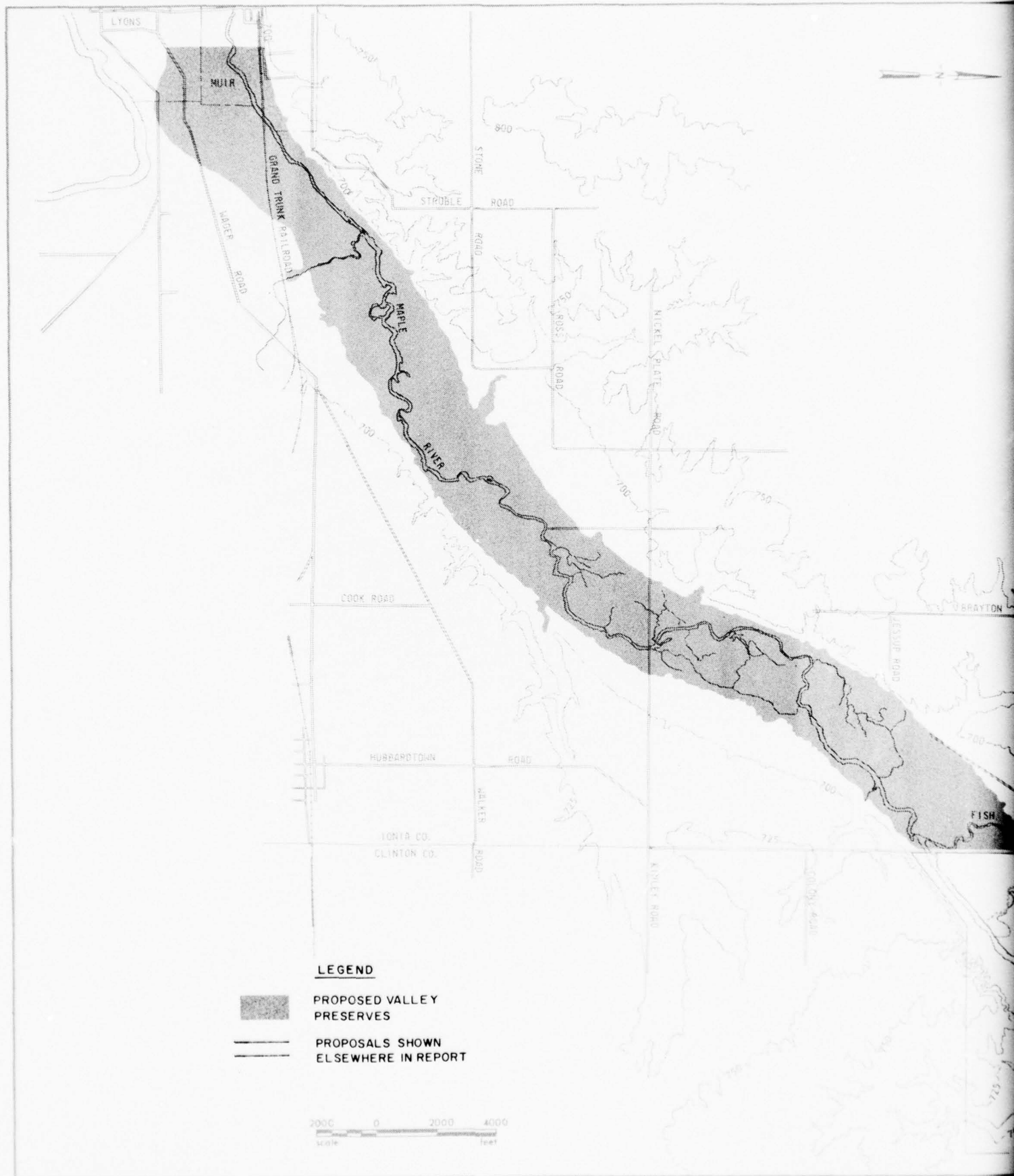
STAGE RD.

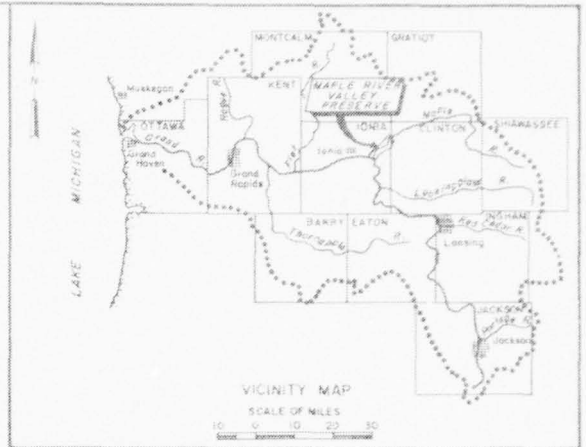


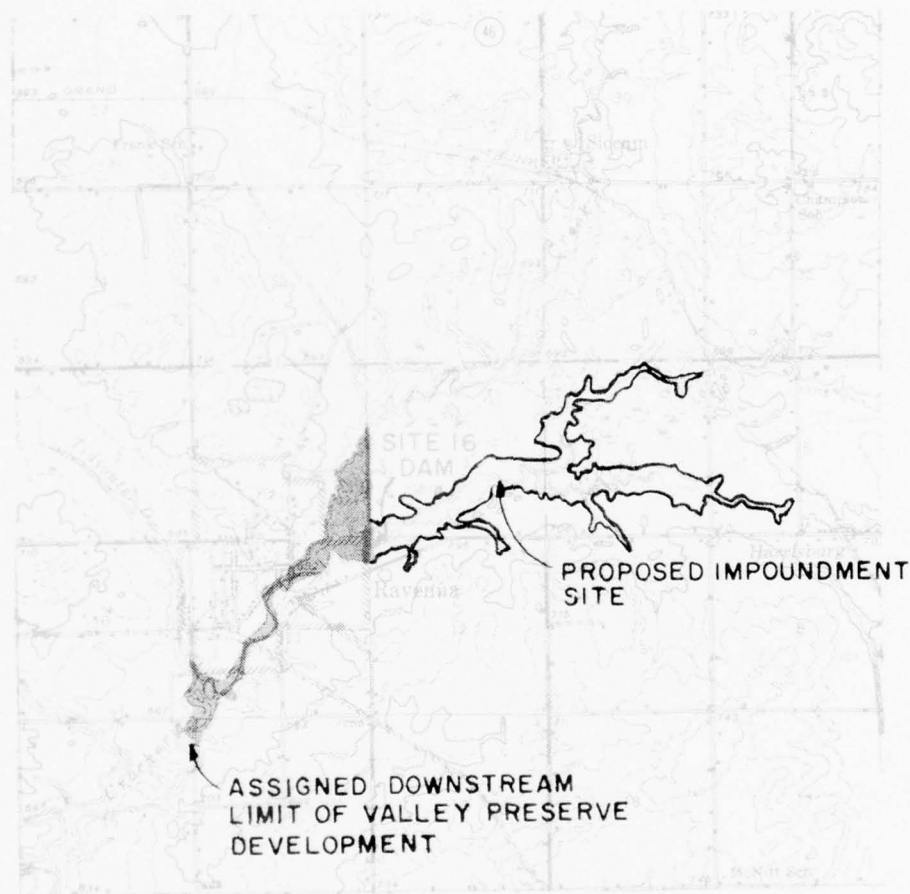
GRAND RIVER BASIN, MICHIGAN
VALLEY PRESERVE II
PRAIRIE CREEK

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-12









SCALE OF MILES

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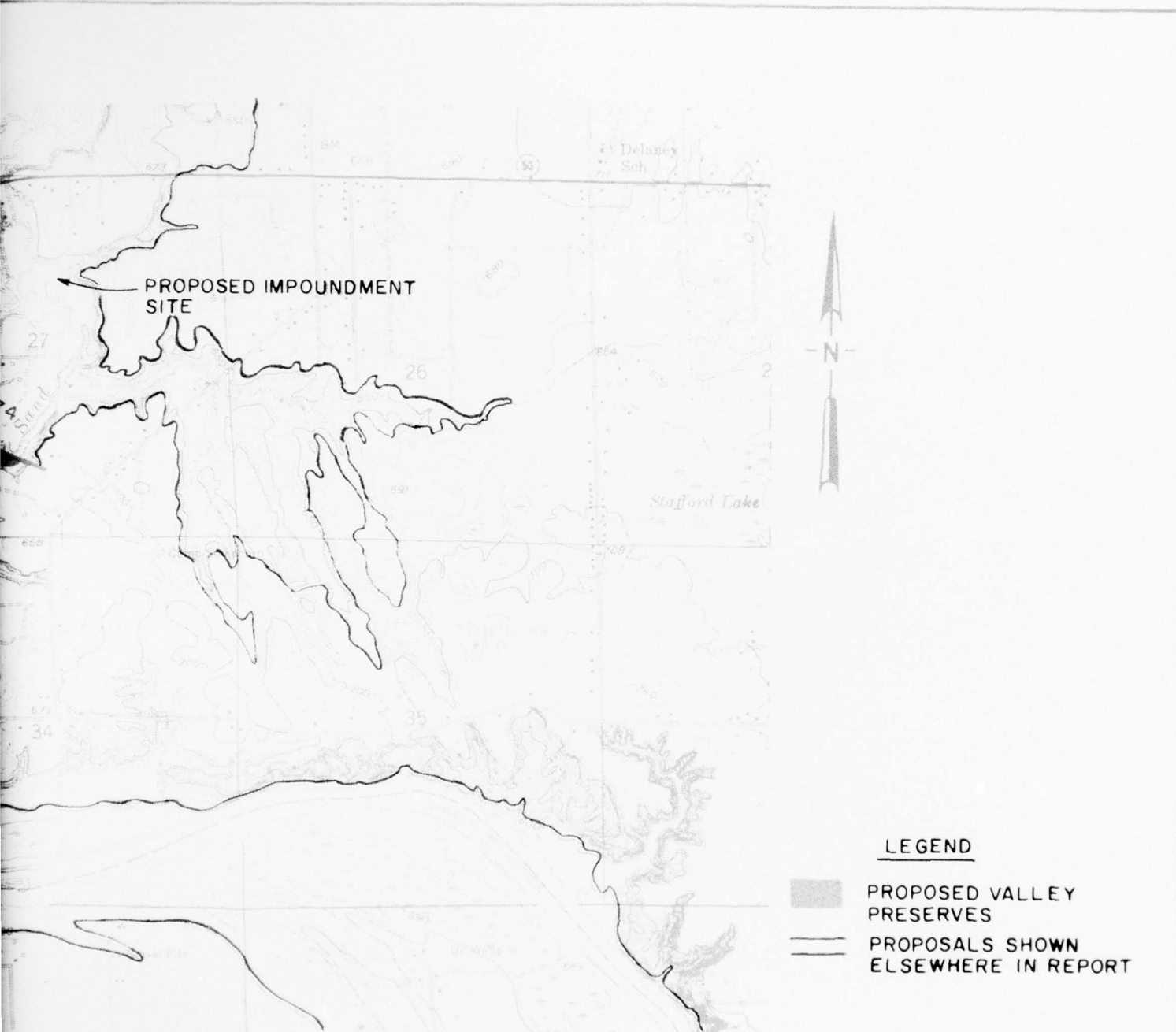
-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICH.
VALLEY PRESERVE IV
CROCKERY CREEK

BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES

U.S. ARMY ENGINEER DISTRICT, DETROIT



PLATE Q-14



PROPOSED IMPOUNDMENT
SITE



LEGEND

-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

OF MILES

GRAND RIVER BASIN, MICHIGAN
VALLEY PRESERVE V
SAND CREEK

U.S. ARMY ENGINEER DISTRICT, DETROIT

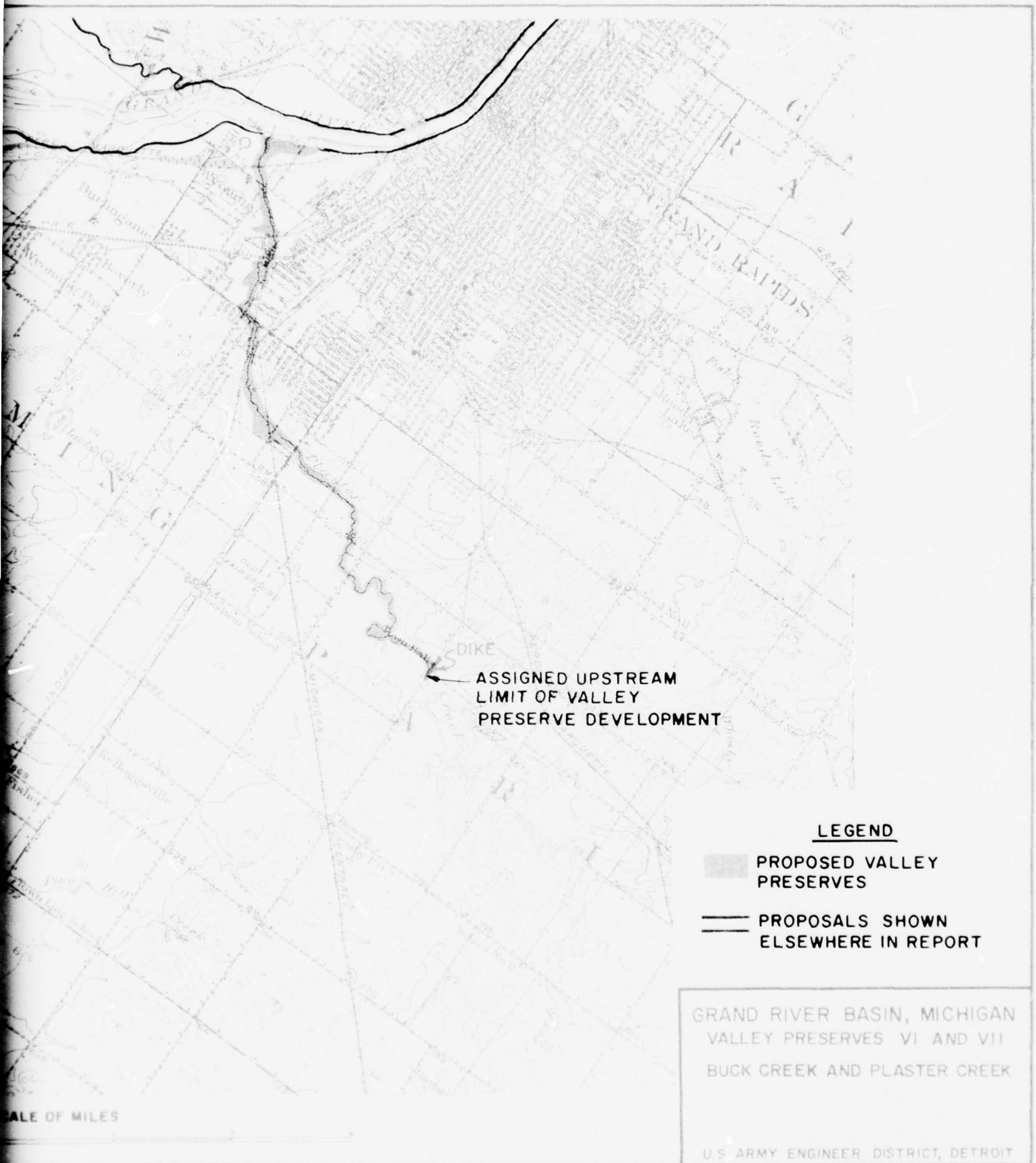
PLATE Q-15

2

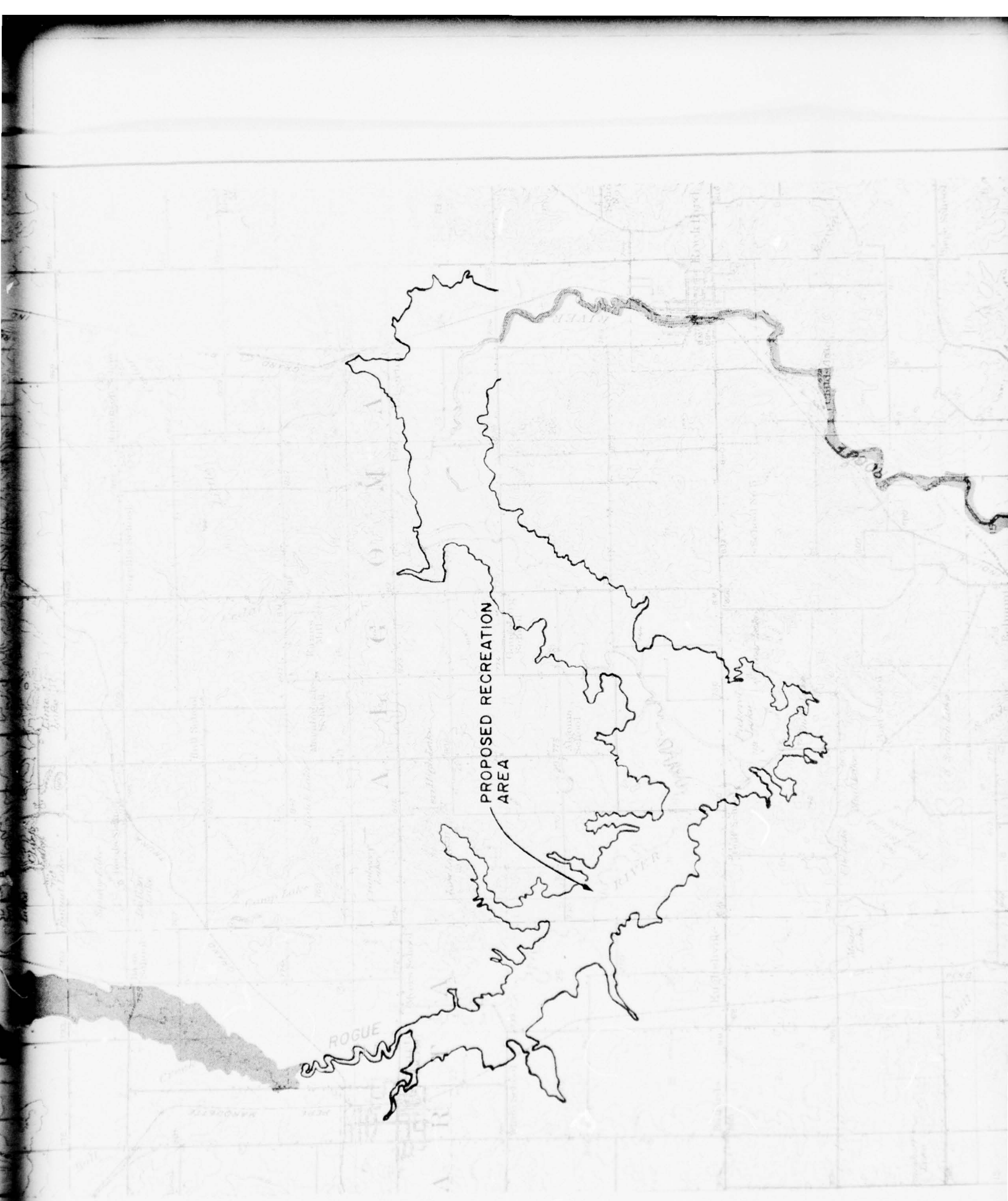


SCALE OF MILES

BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES

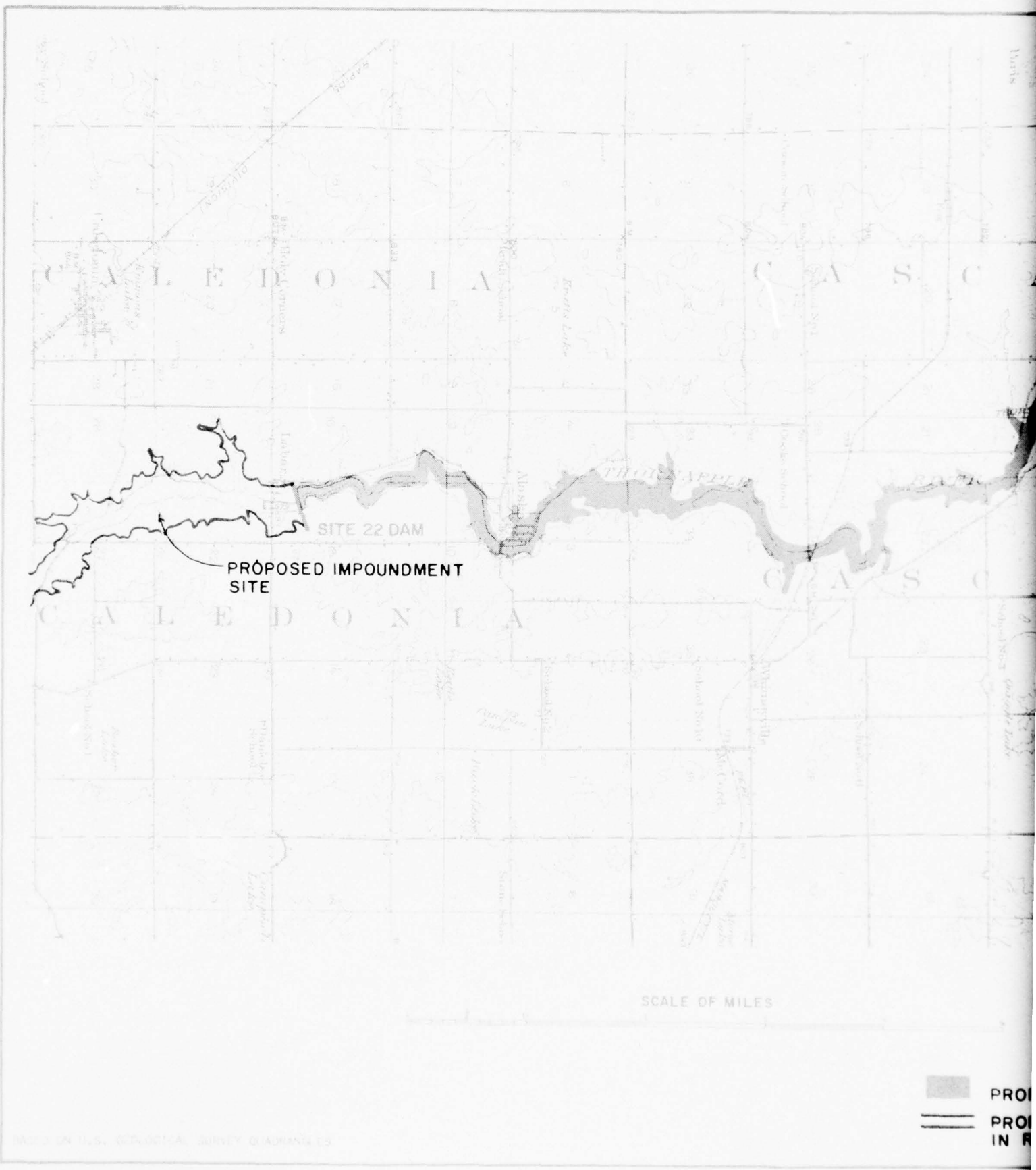




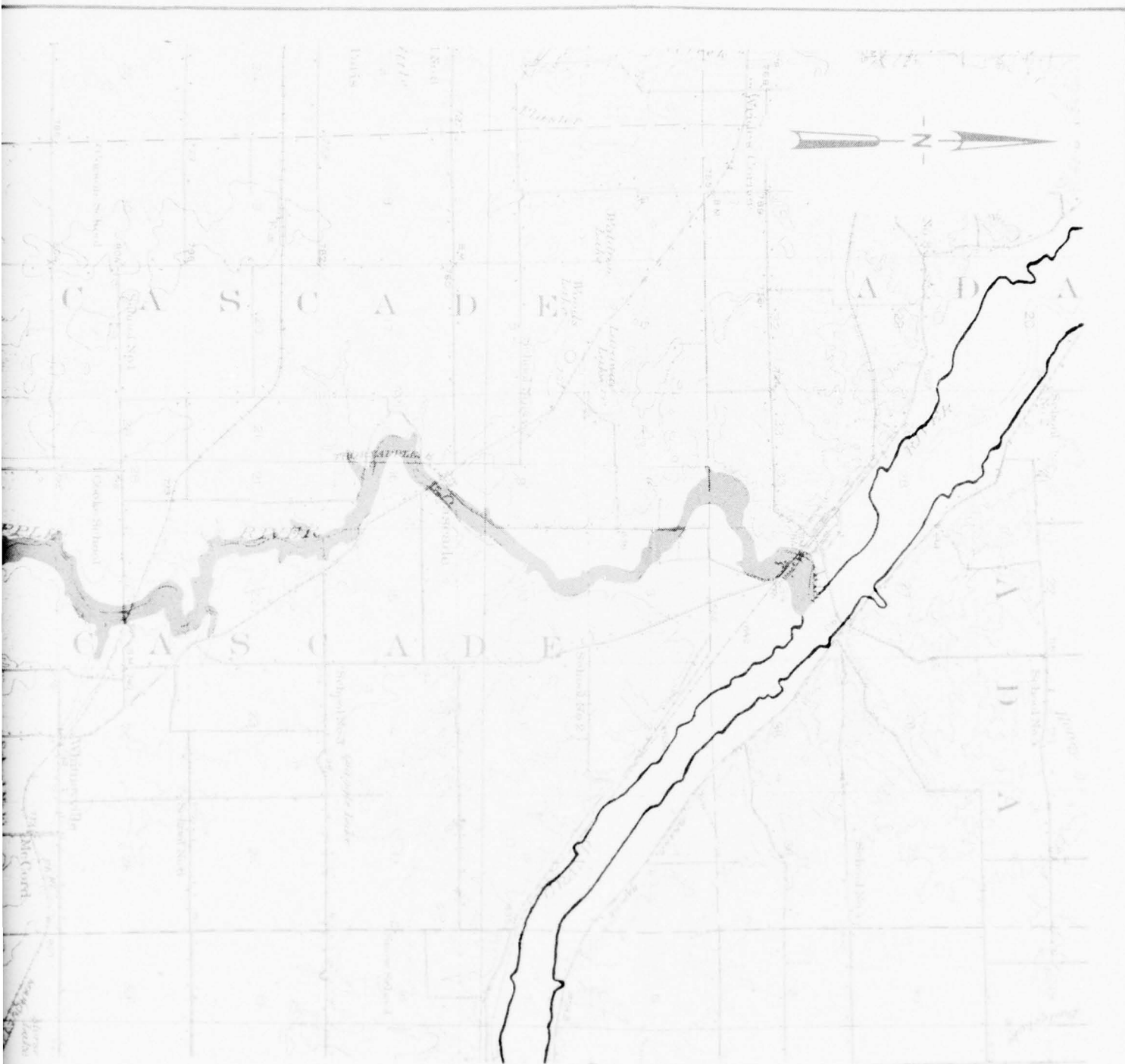


PROPOSED RECREATION
AREA

ROGUE



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



OF MILES

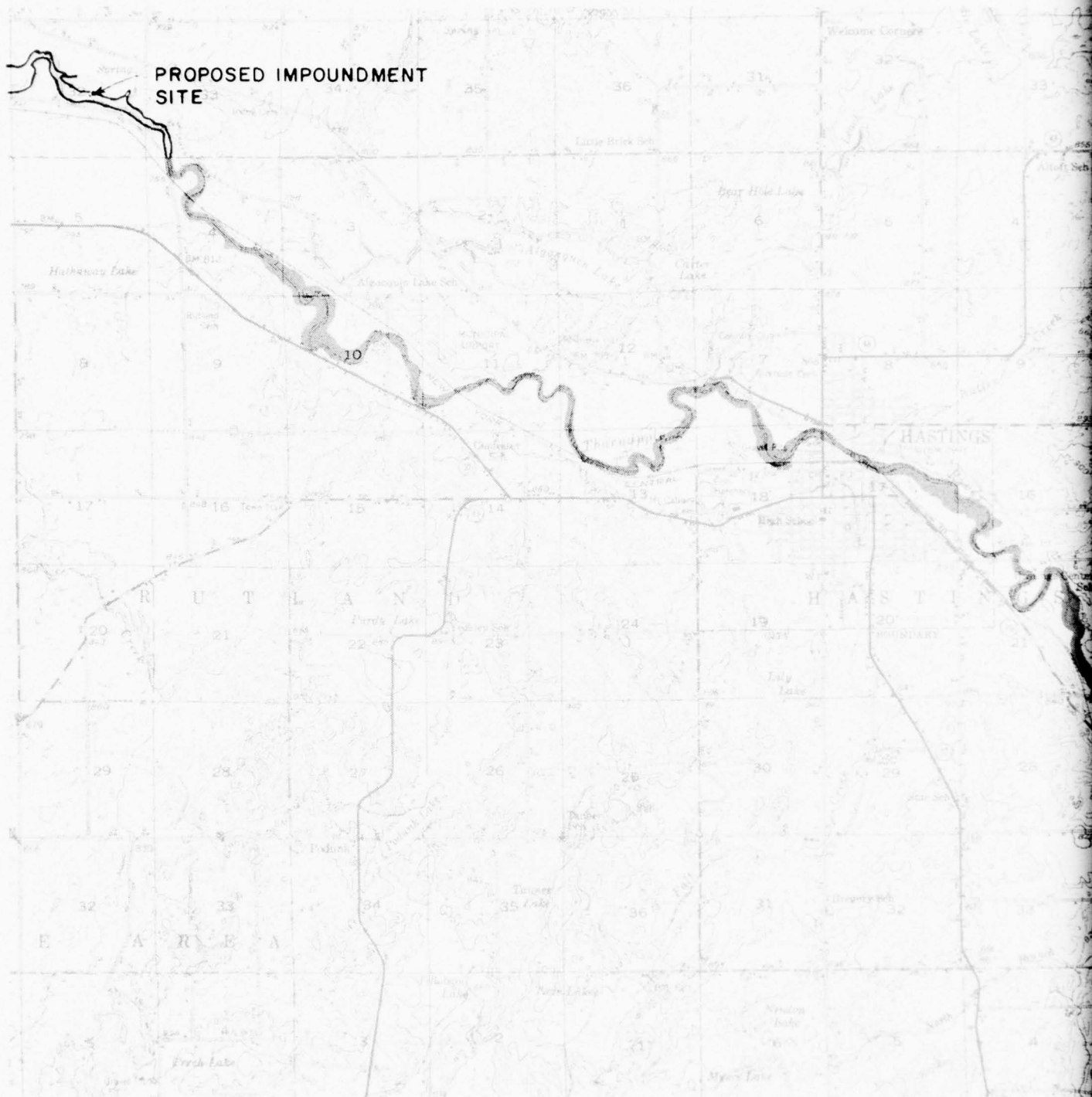
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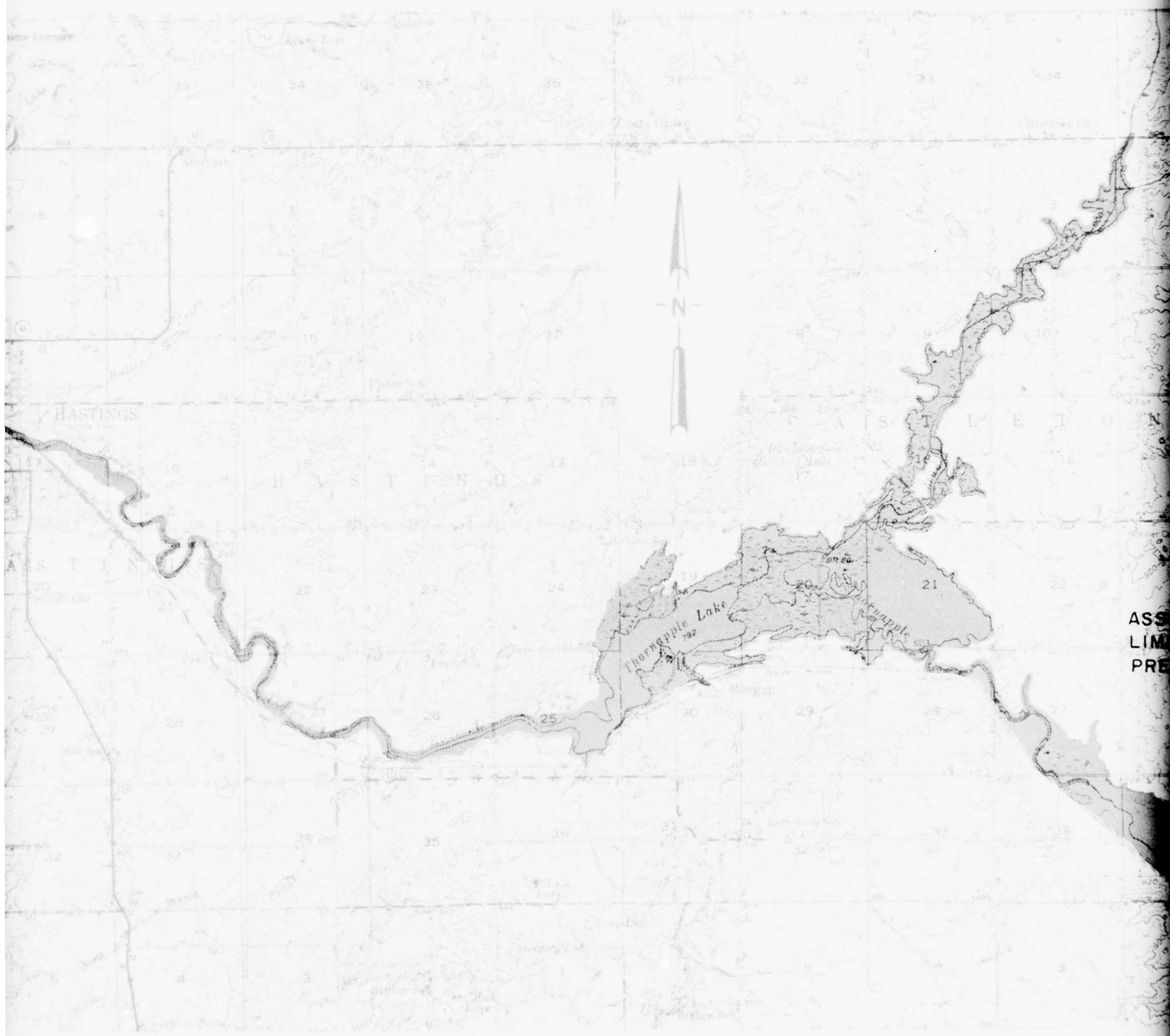
- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

GRAND RIVER BASIN, MICHIGAN
VALLEY PRESERVE IX
THORNAPPLE RIVER

U.S. ARMY ENGINEER DISTRICT, DETROIT



PLATE Q-18a



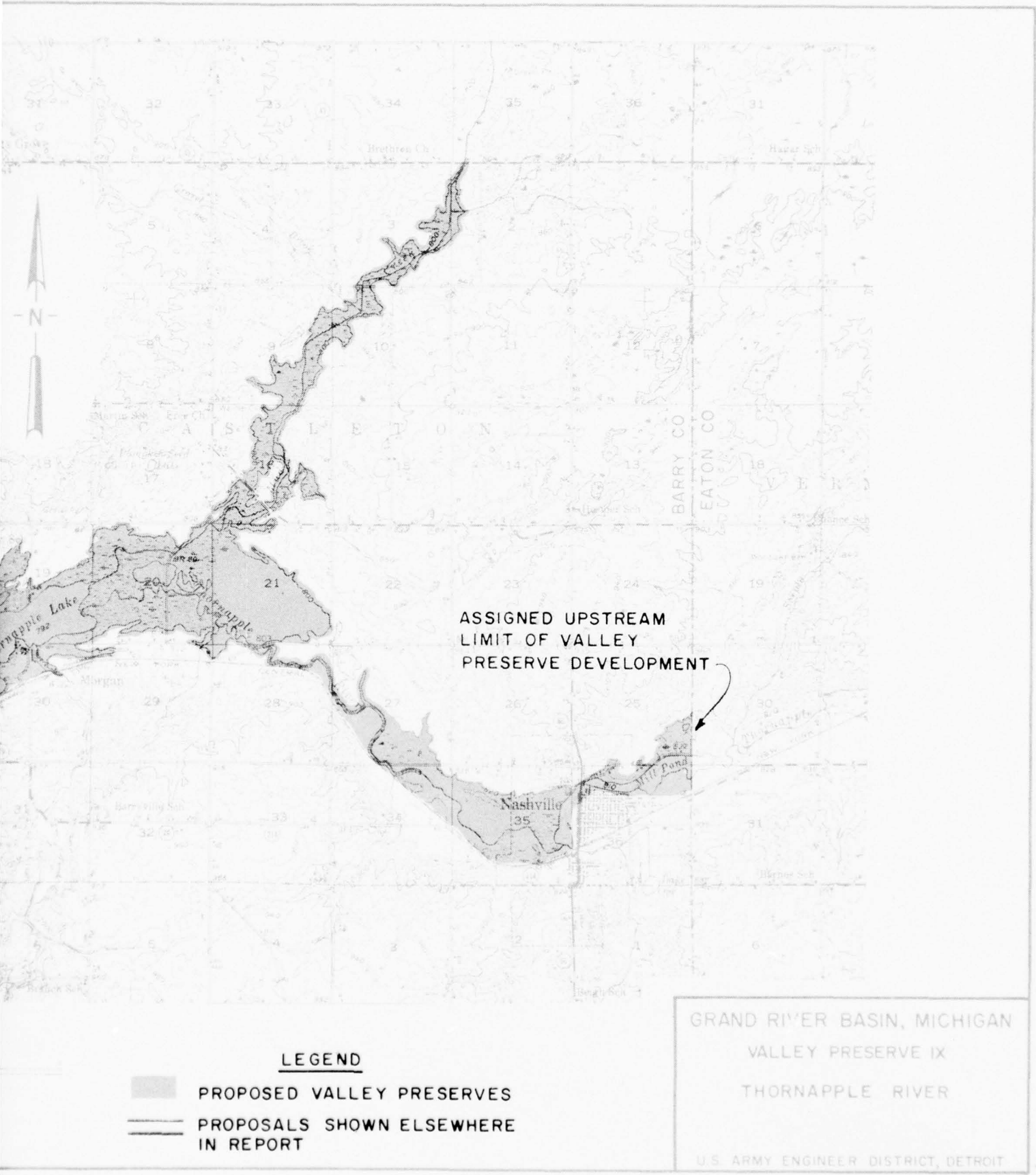


SCALE OF MILES



LEGEND

-  PROPOSED VALLEY PRESERVE
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

2



LEGEND

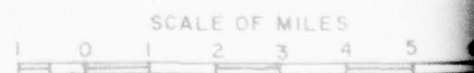
-  PROPOSED VALLEY PRESERVES
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

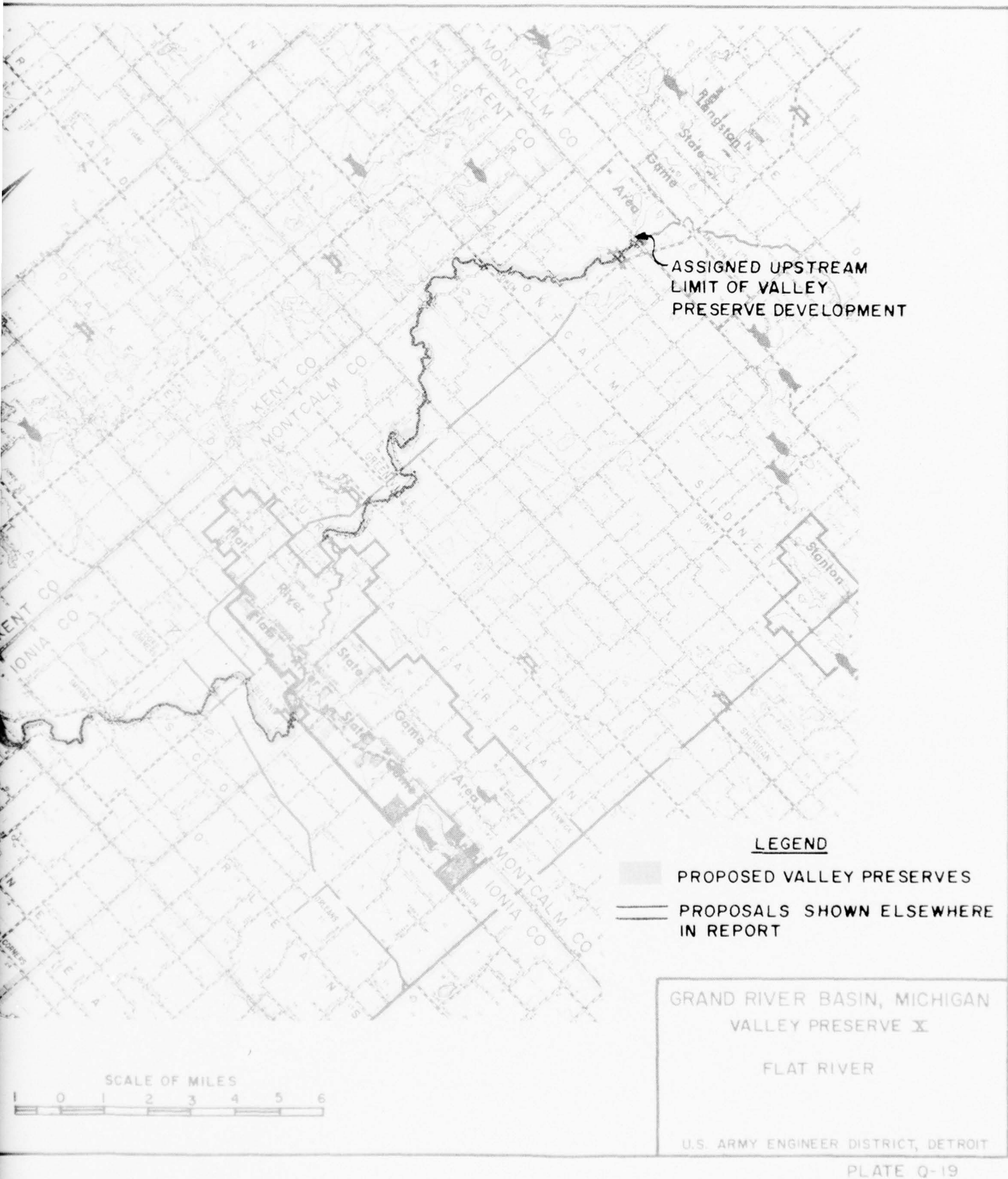
GRAND RIVER BASIN, MICHIGAN
VALLEY PRESERVE IX
THORNAPPLE RIVER

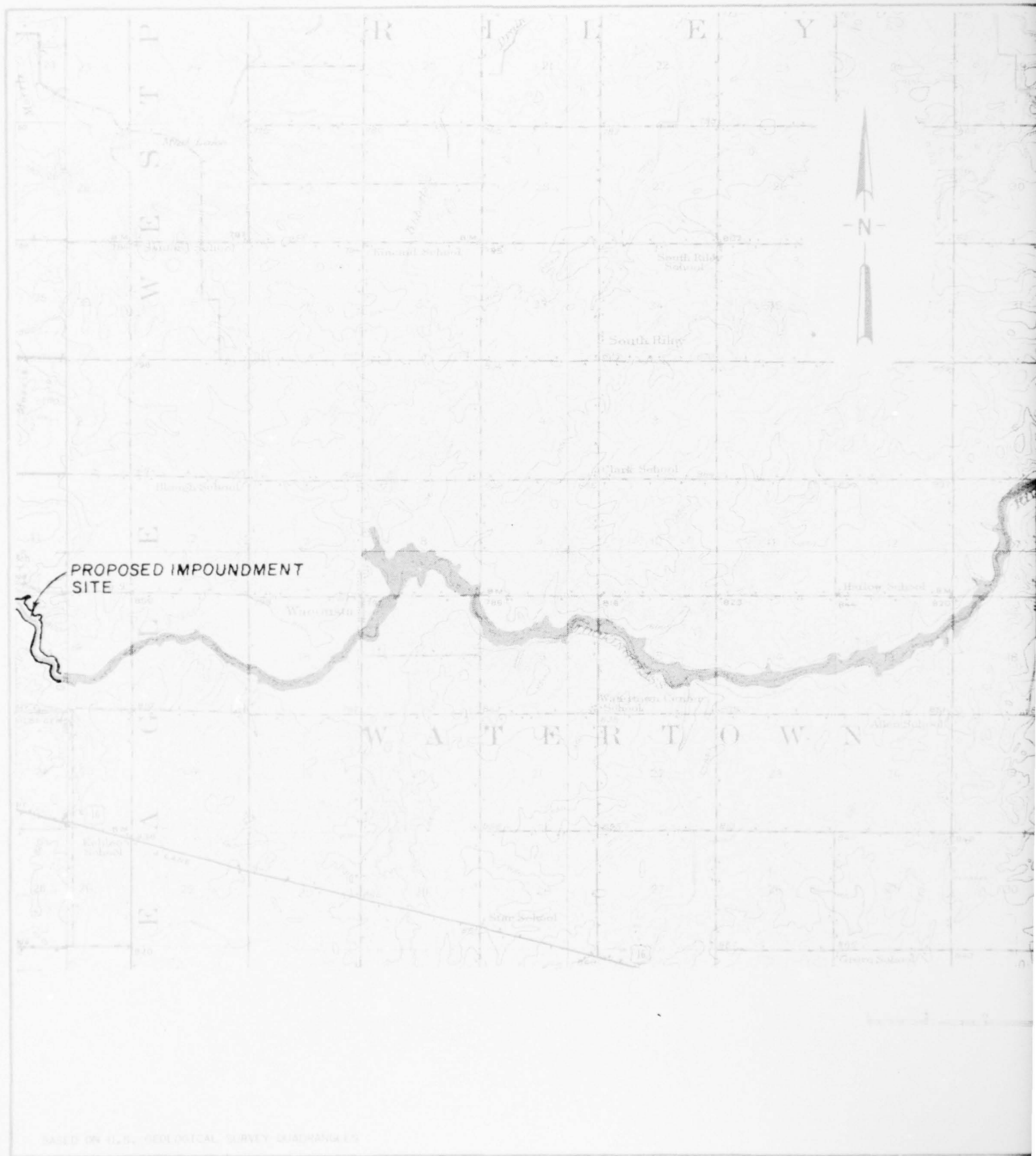
U.S. ARMY ENGINEER DISTRICT, DETROIT

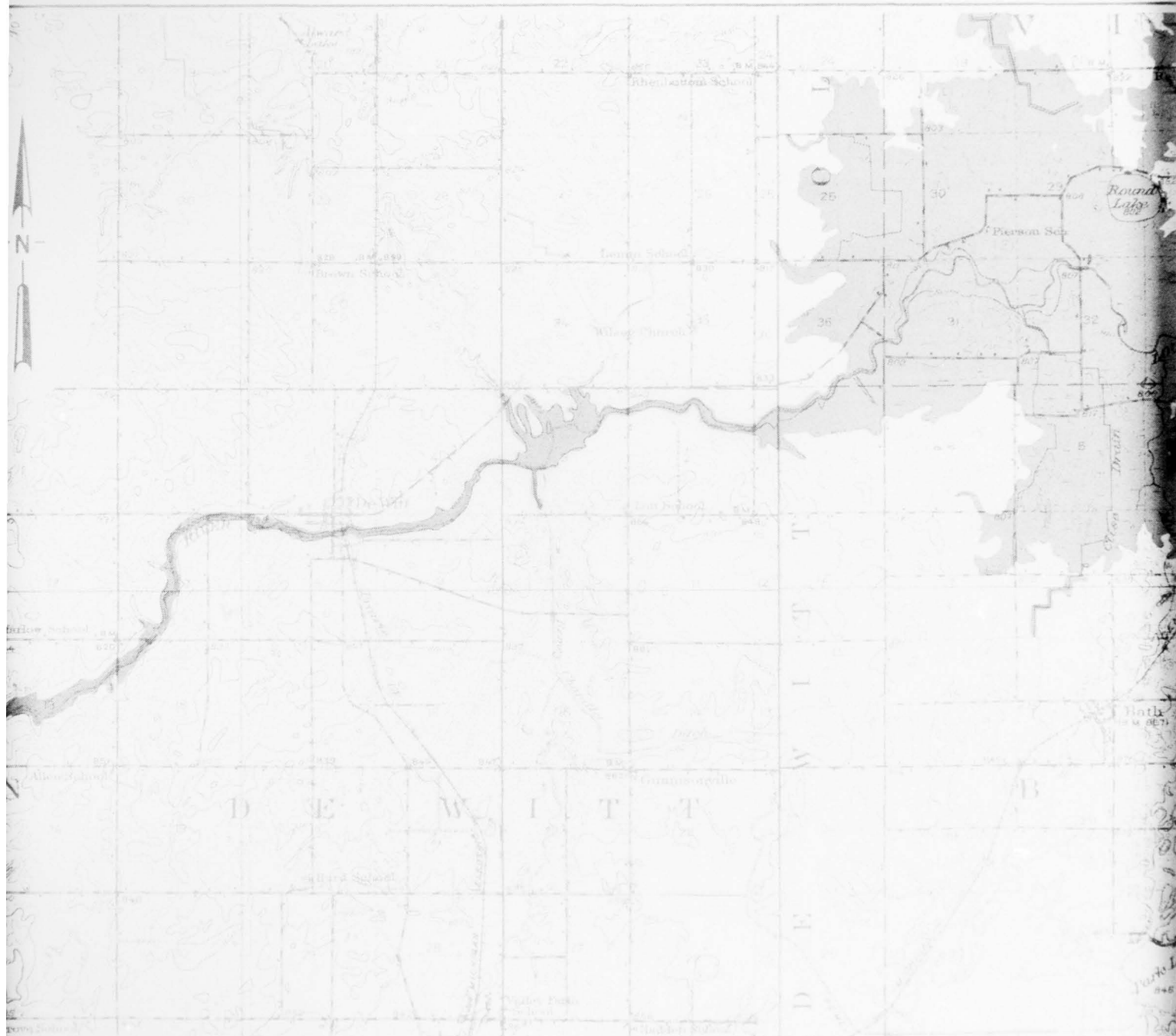


BASE MAP BY MICHIGAN STATE HIGHWAY DEPARTMENT









SCALE OF MILES

LEGEND

- PROPOSED VALLEY PRESERVE
- PROPOSALS SHOWN ELSEWHERE IN REPORT



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES

PROF
PROF
IN RE



SCALE OF MILES

LEGEND

- PROPOSED VALLEY PRESERVES
- PROPOSALS SHOWN ELSEWHERE IN REPORT

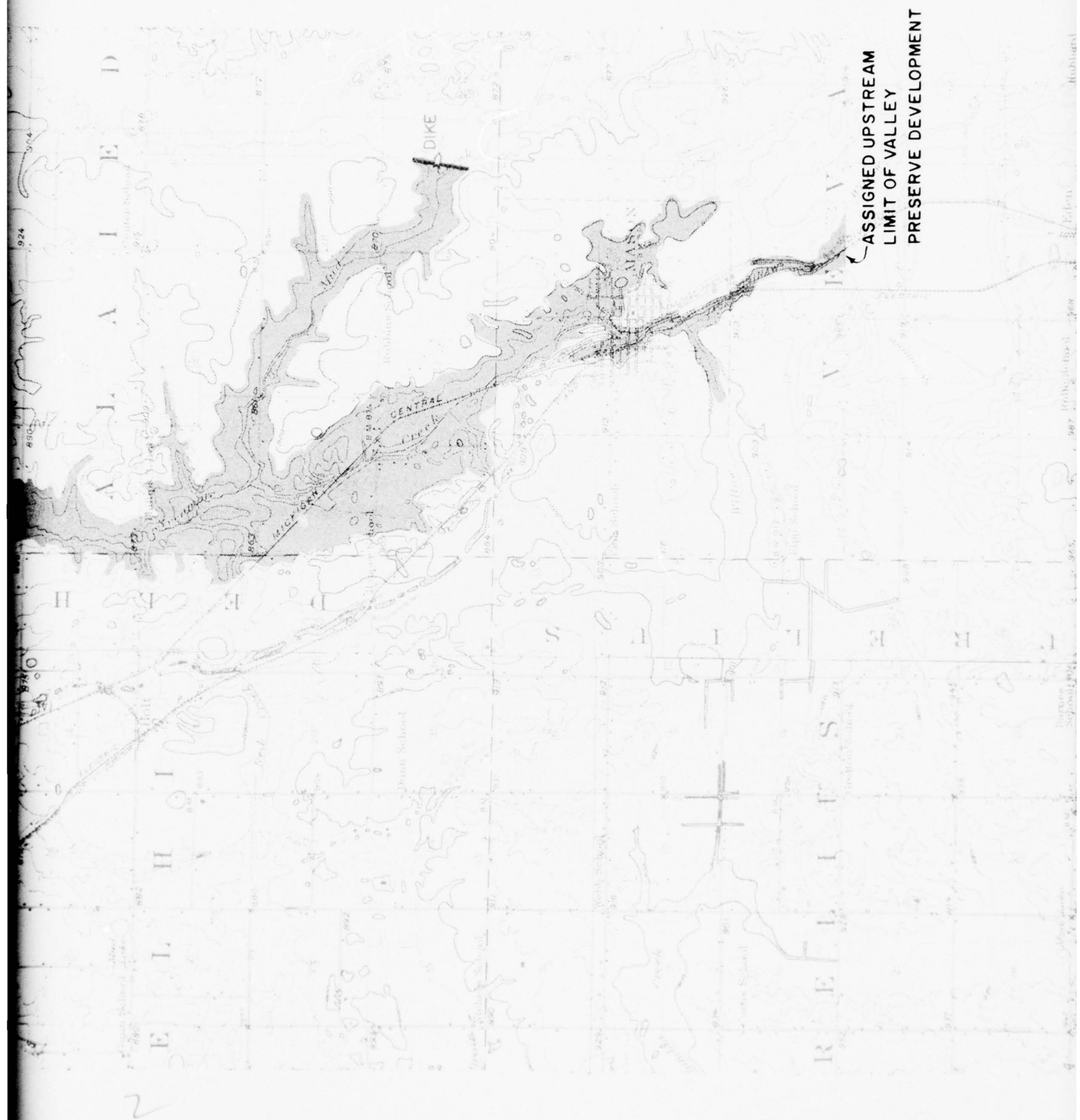
GRAND RIVER BASIN, MICHIGAN
VALLEY PRESERVE XII

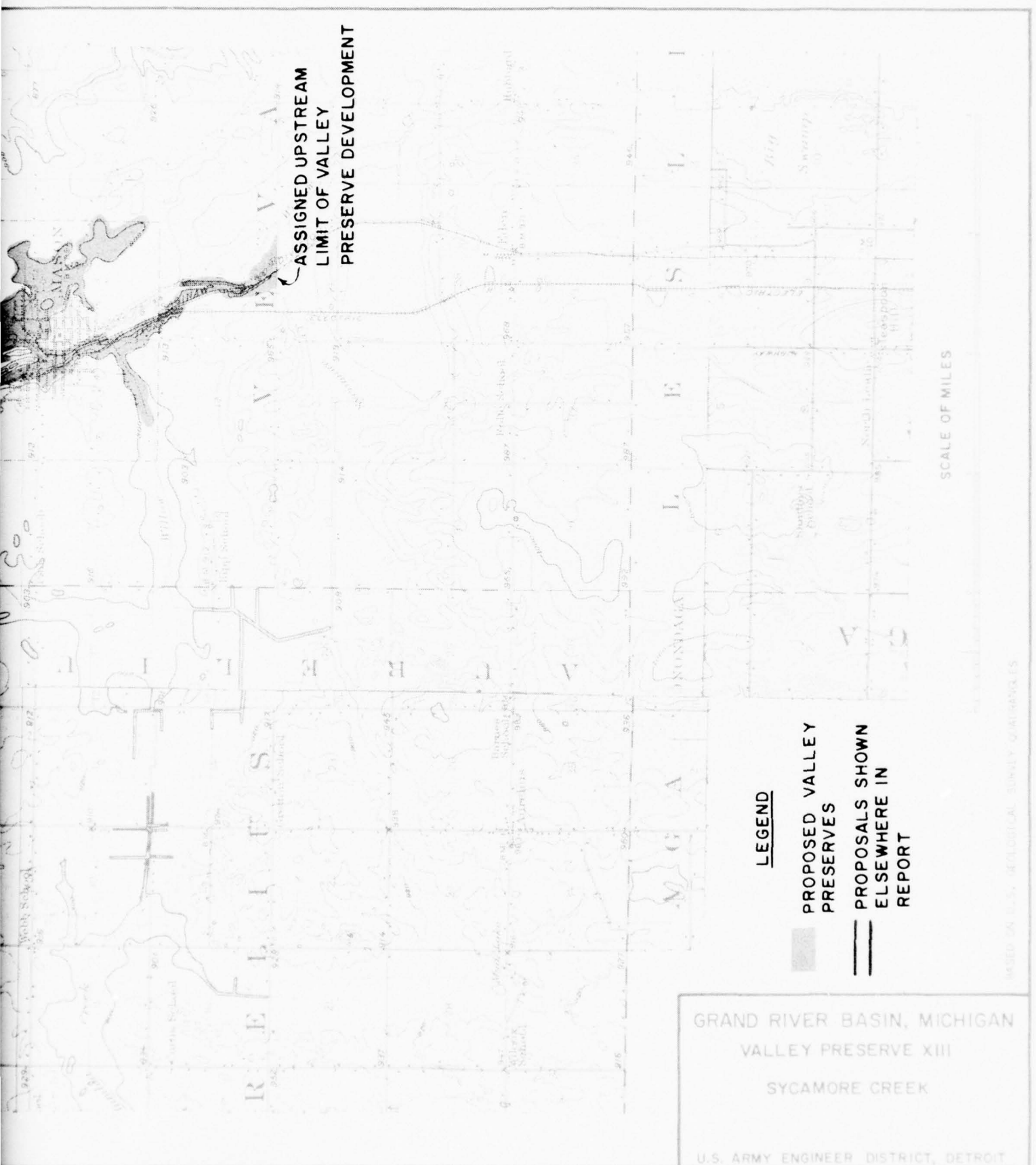
RED CEDAR RIVER

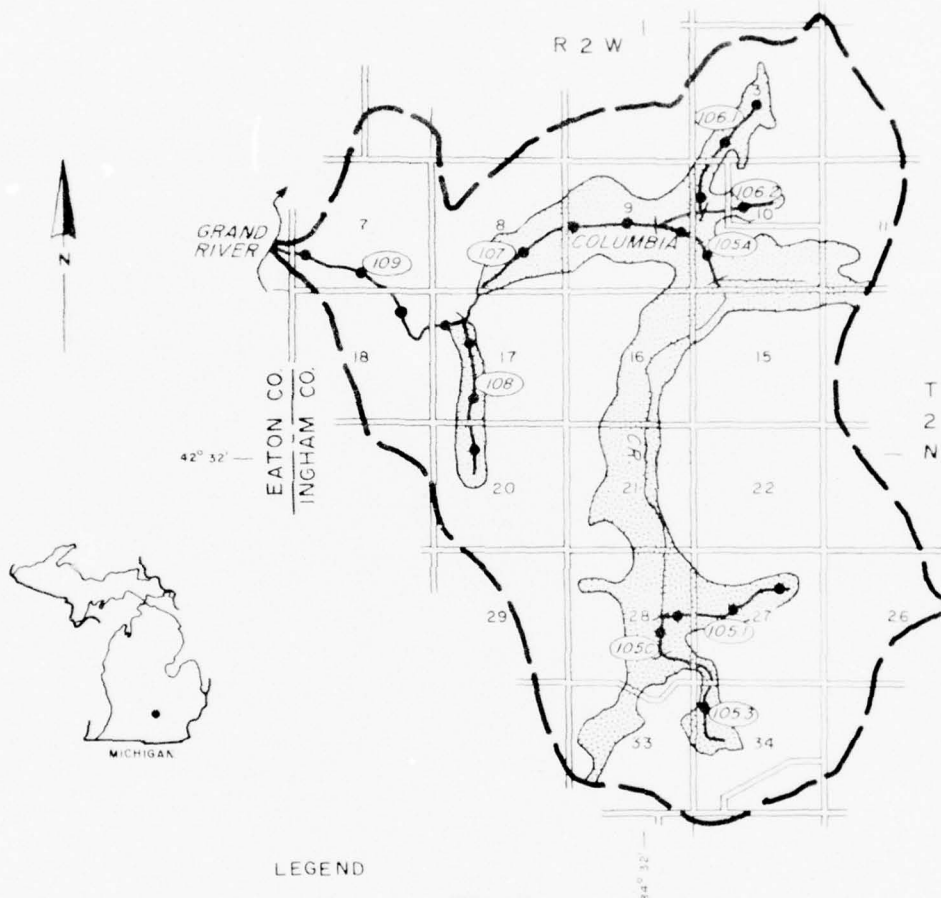
U. S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-21









LEGEND

BENEFITED AREA

CHANNEL IMPROVEMENT F.P. & D.

REACH BREAK

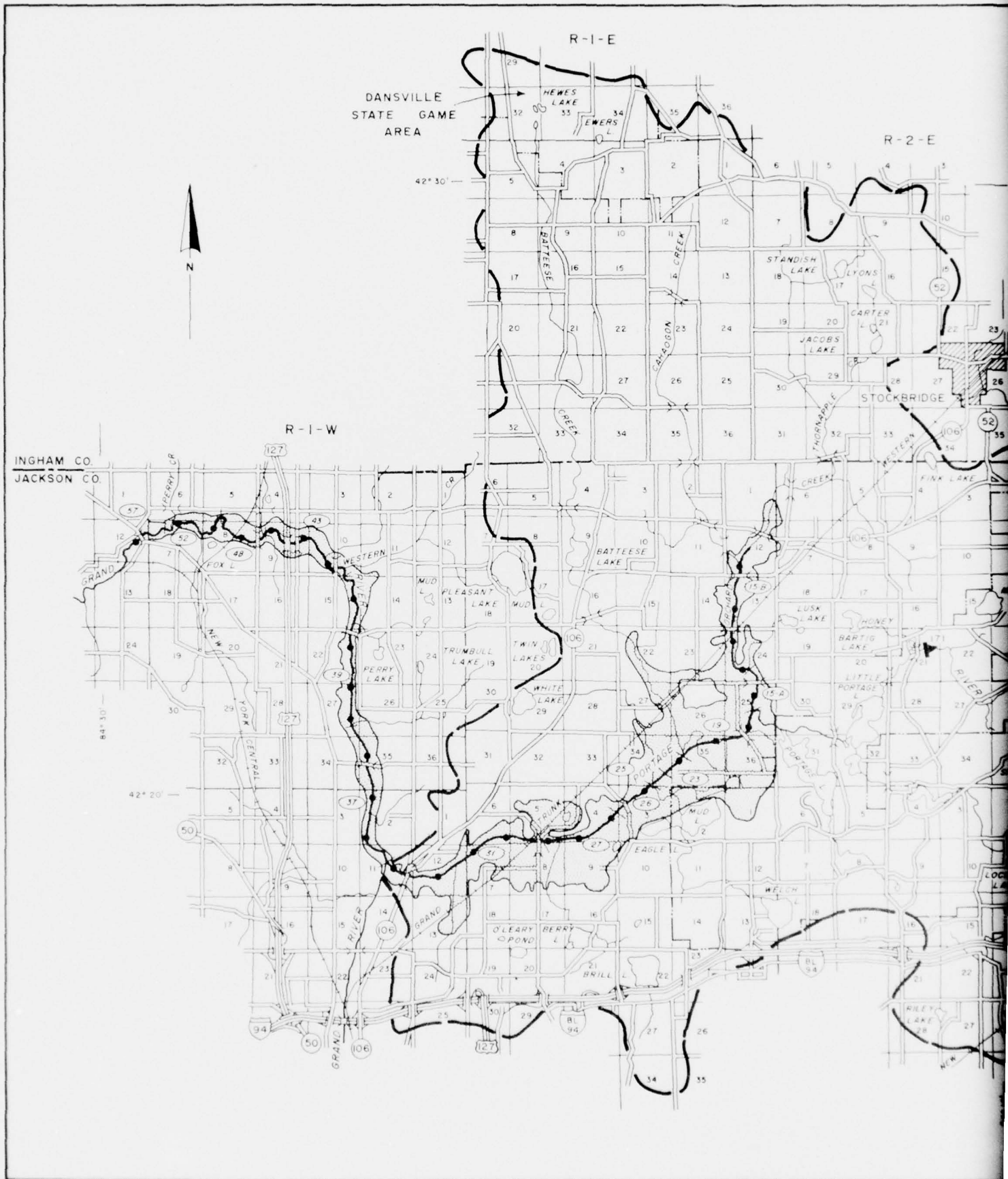
REACH NUMBER

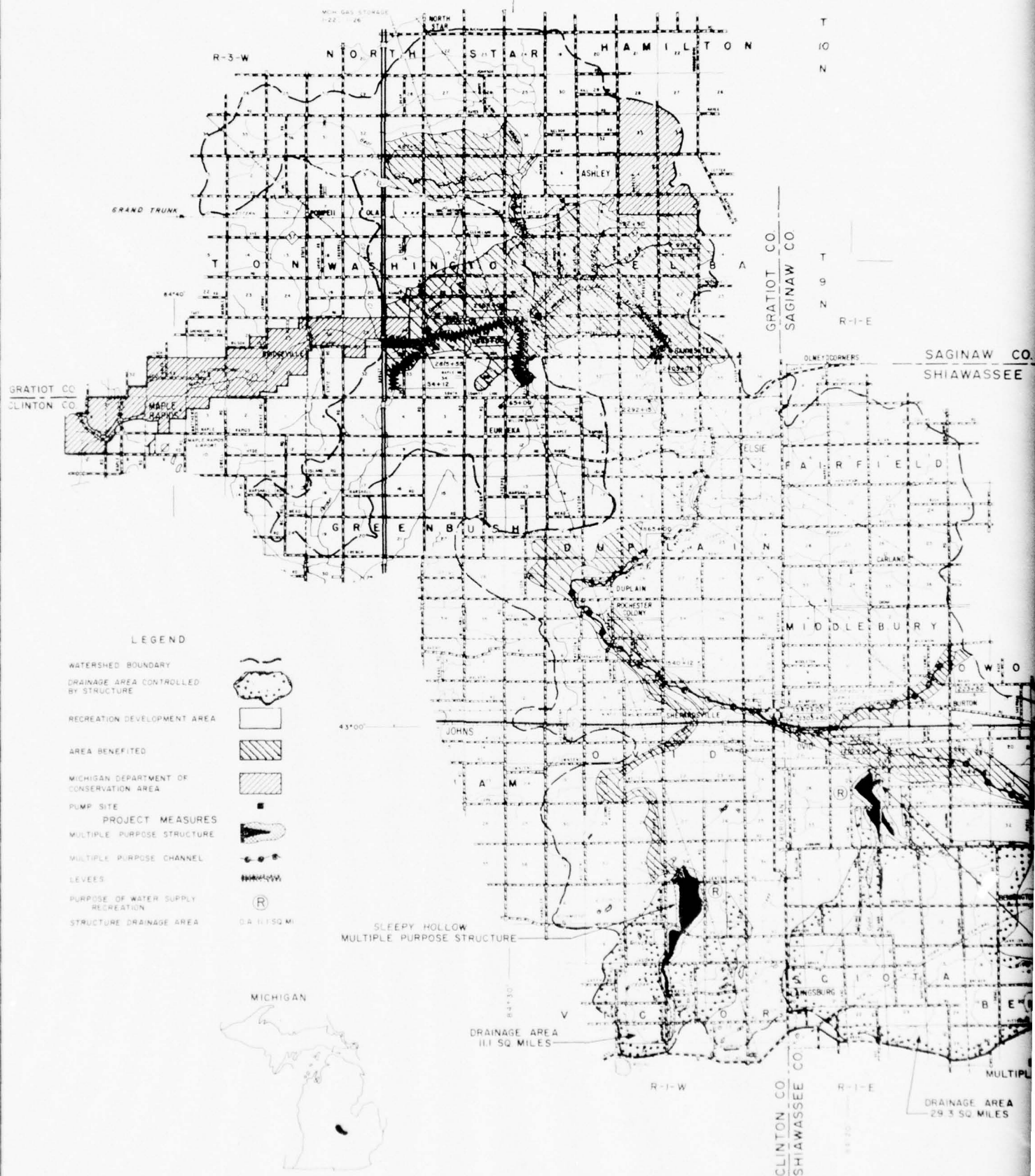


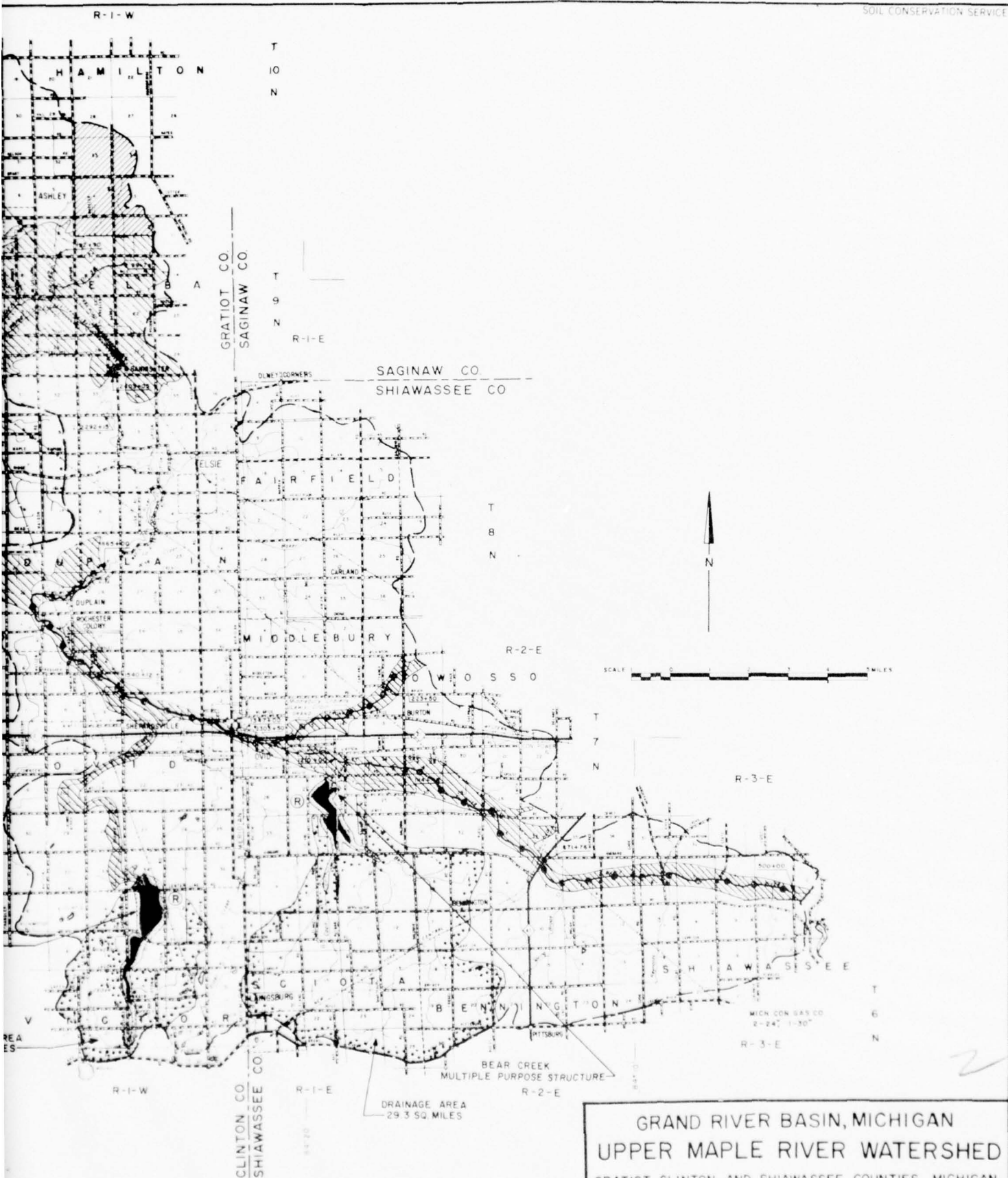
GRAND RIVER BASIN
UPPER COLUMBIA CREEK SUBWATERSHED
INGHAM COUNTY, MICHIGAN

SCALE 0 1 2 3 4 5 6 7 8 9 10

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

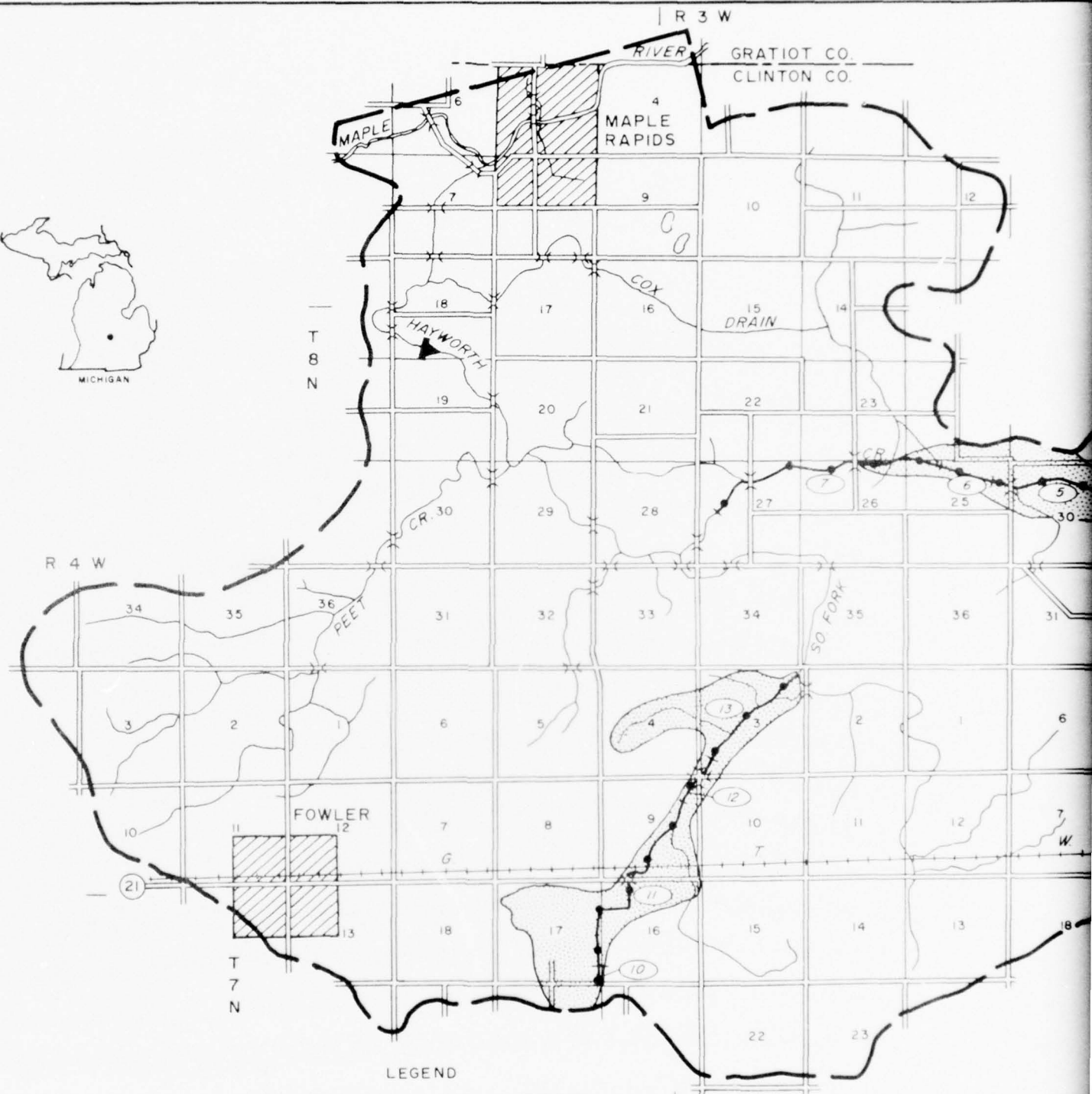






GRAND RIVER BASIN, MICHIGAN
UPPER MAPLE RIVER WATERSHED

GRATIOT, CLINTON AND SHIAWASSEE COUNTIES, MICHIGAN



LEGEND

BENEFITED AREA

MULTIPLE PURPOSE CHANNEL
IMPROVEMENT

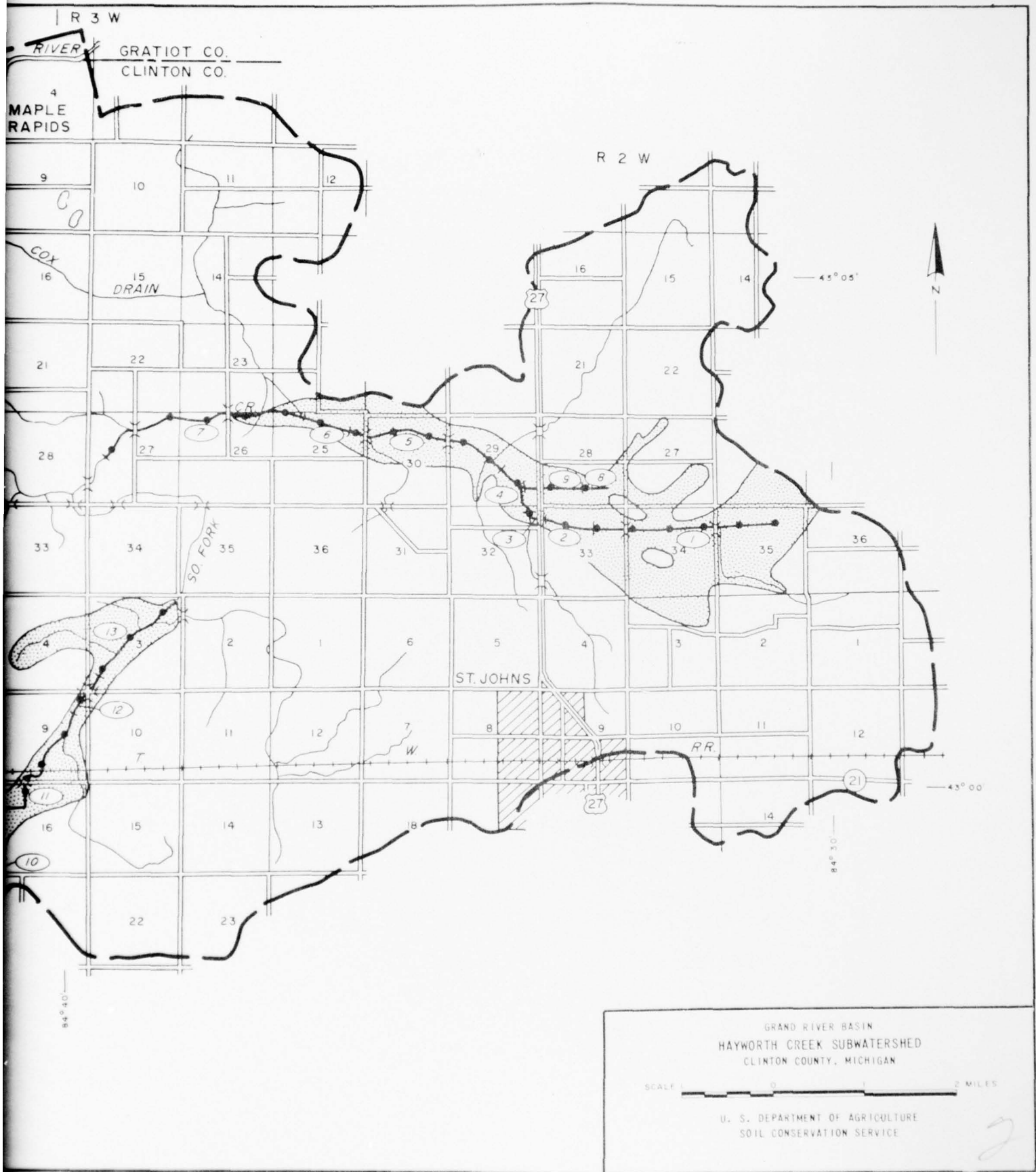
REACH BREAK

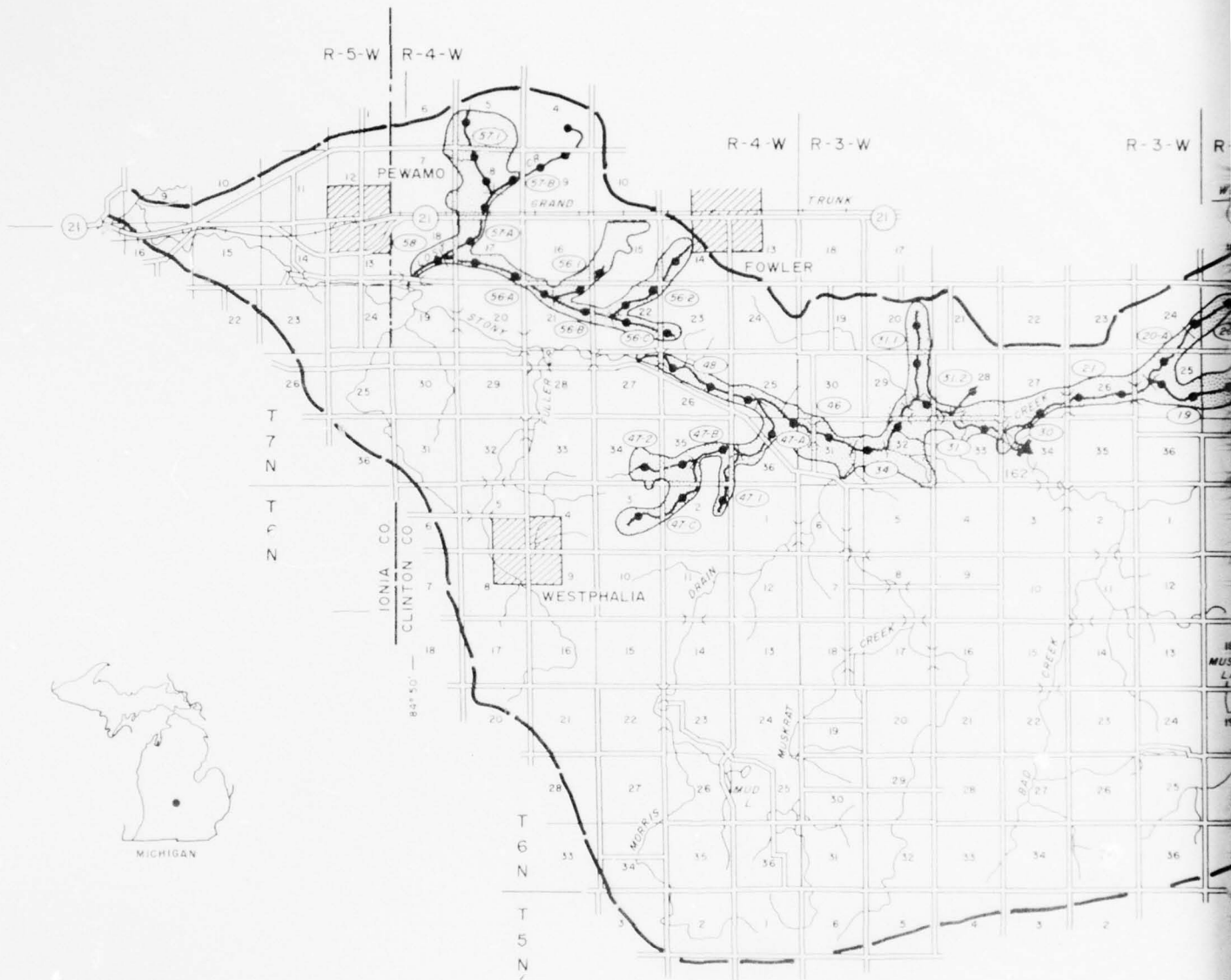
REACH NUMBER

SINGLE PURPOSE RECREATION
STRUCTURE



84° 40'





LEGEND

BENEFITED AREA



MULTIPLE PURPOSE CHANNEL IMPROVEMENT F.P.B.D.



SINGLE PURPOSE RECREATION STRUCTURE AND NUMBER

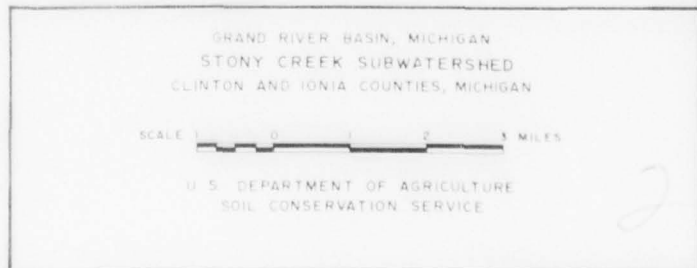
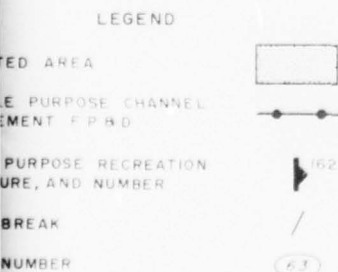
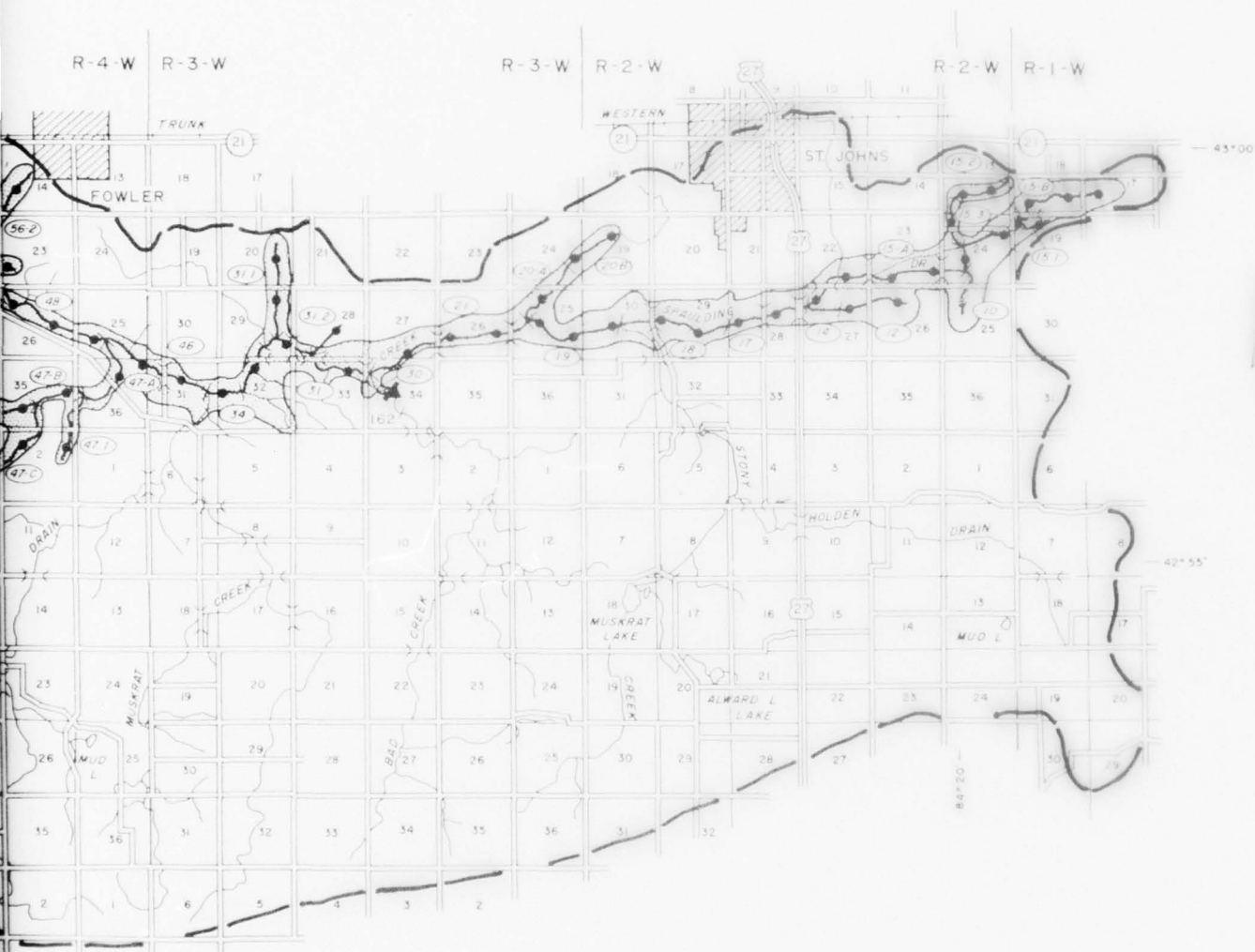


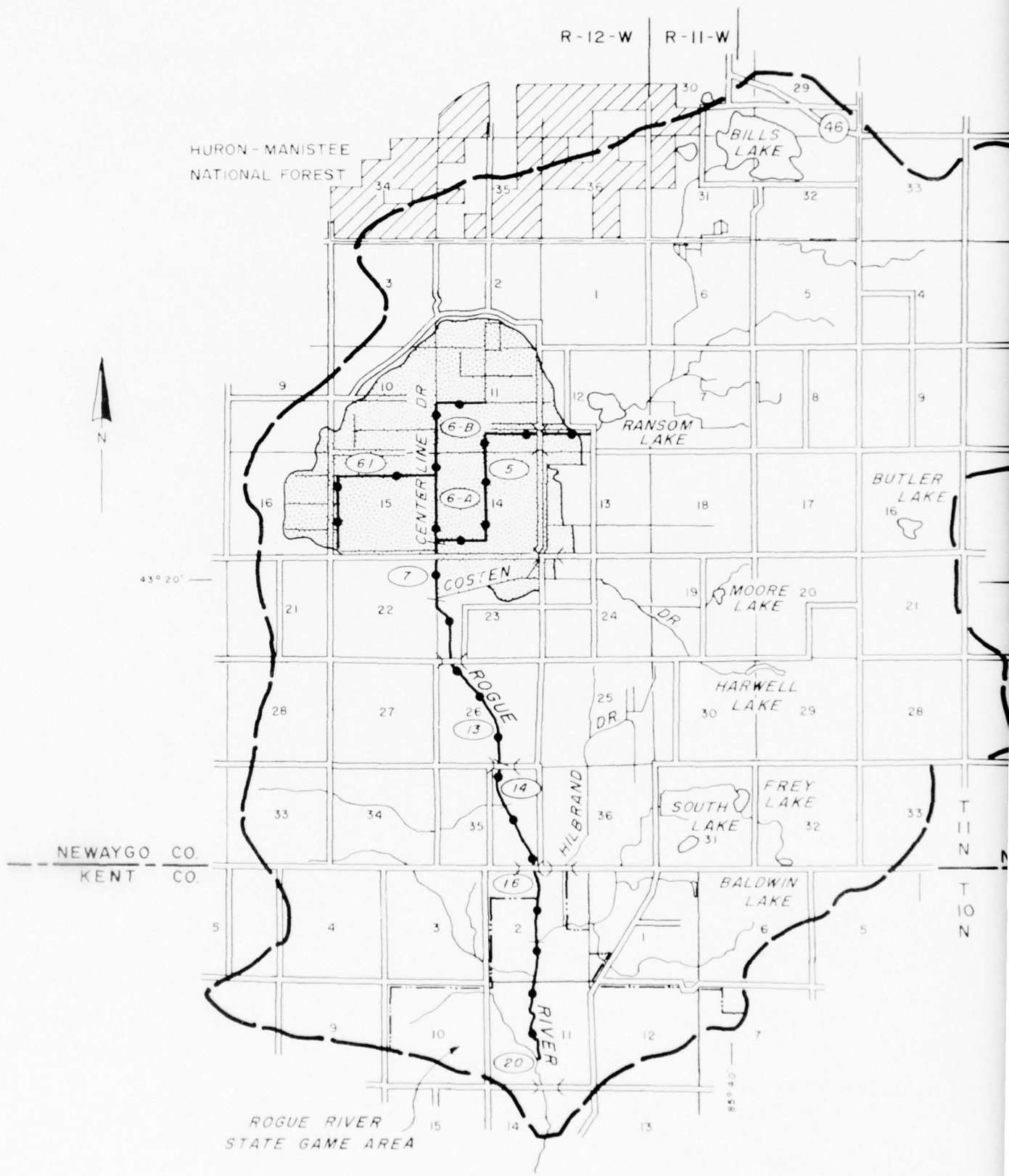
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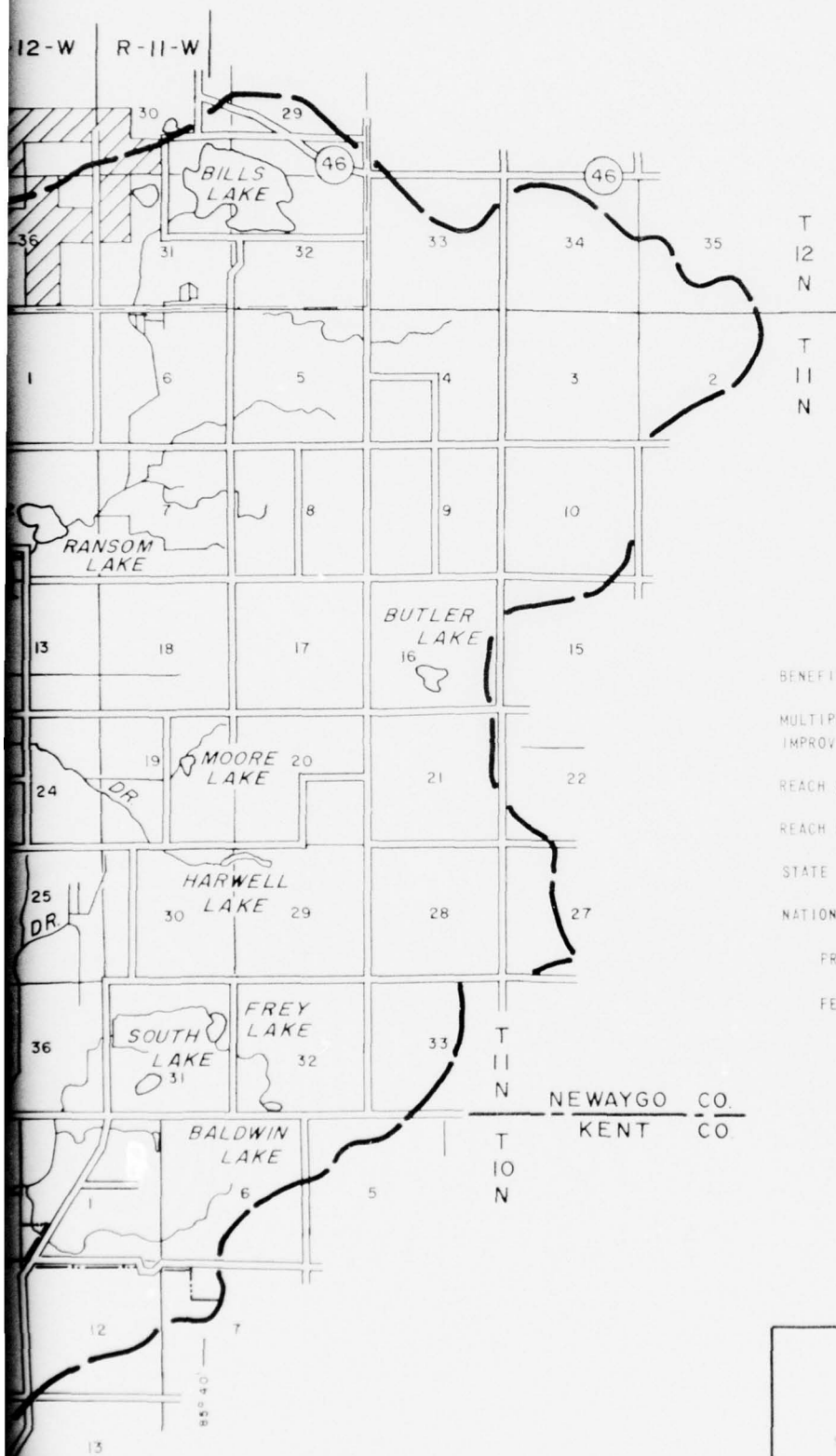


REACH NUMBER


















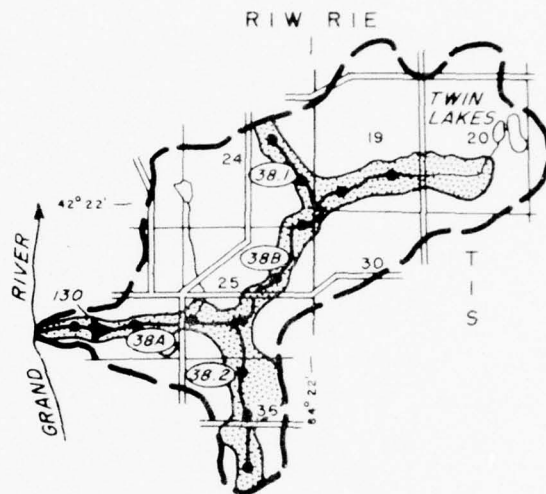
LEGEND

- BENEFITED AREA 
- MULTIPLE PURPOSE CHANNEL IMPROVEMENT 
- REACH BREAK 
- REACH NUMBER 
- STATE GAME AREA 
- NATIONAL FOREST: 
- PROCLAMATION BOUNDARY 
- FEDERAL OWNERSHIP 

GRAND RIVER BASIN
 ROGUE RIVER SUBWATERSHED
 KENT & NEWAYGO COUNTIES, MICHIGAN

SCALE  2 MILES

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE



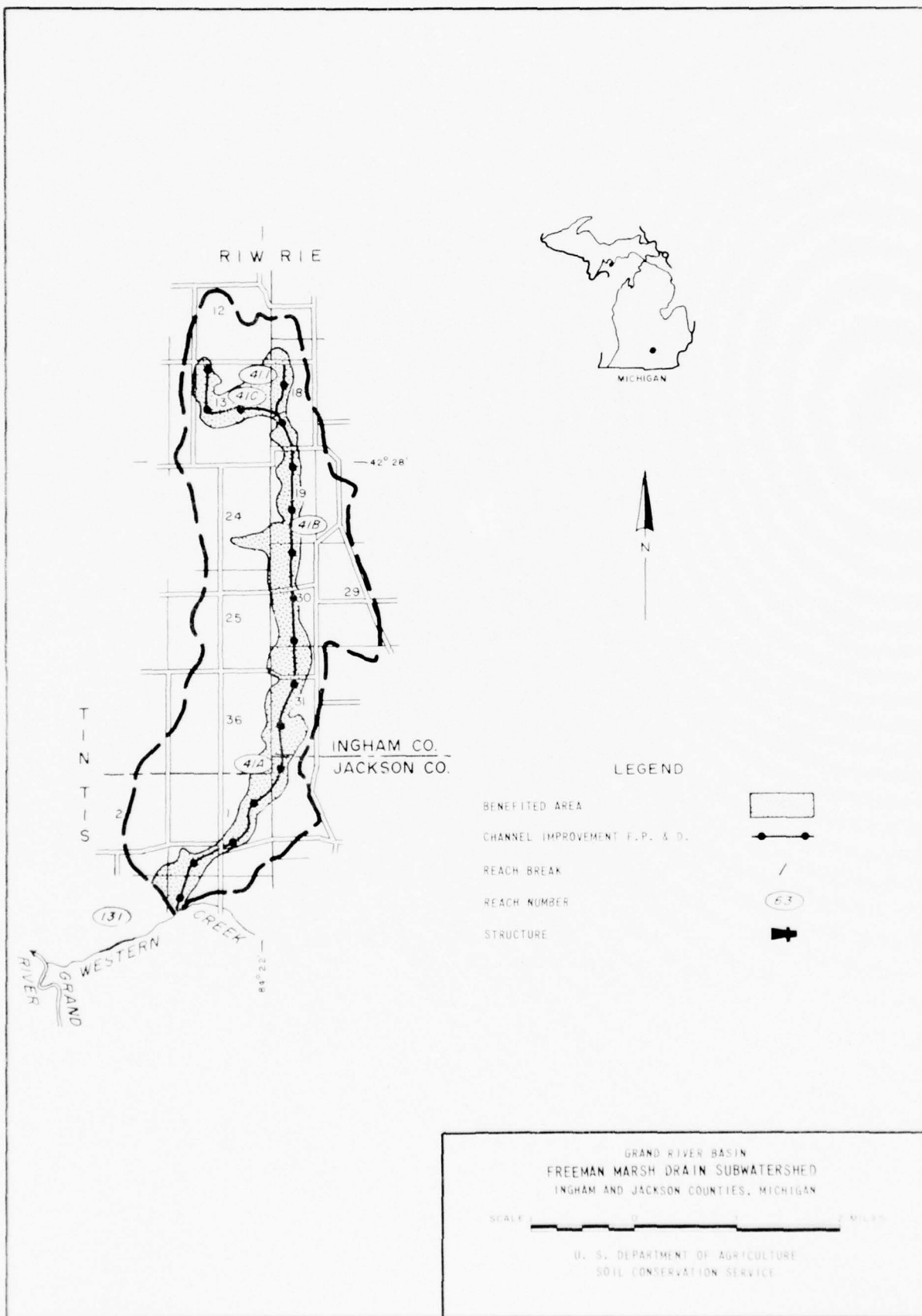
LEGEND

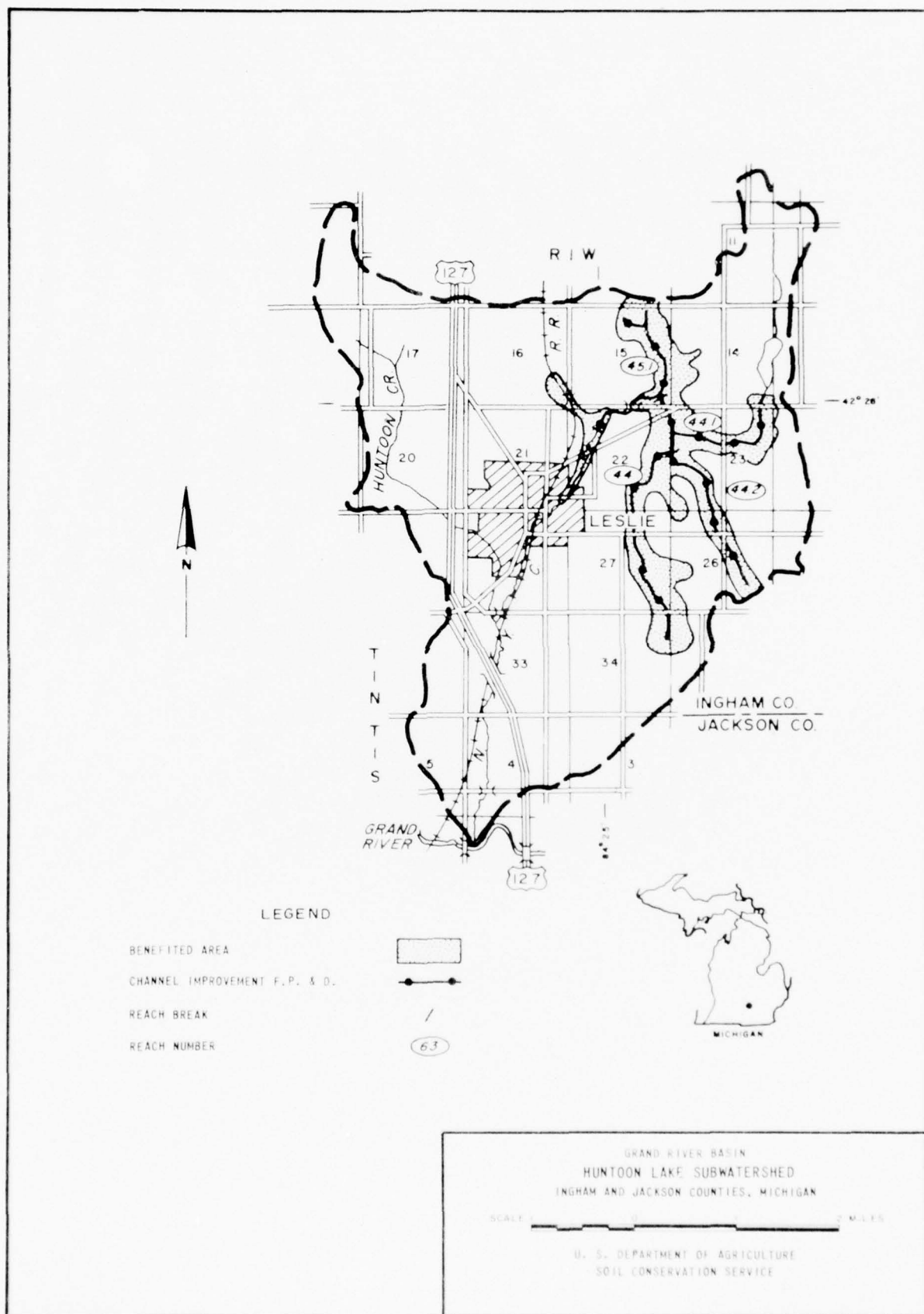
- | | |
|-------------------------------------|--|
| BENEFITED AREA | |
| CHANNEL IMPROVEMENT F.P. & D. | |
| REACH BREAK | |
| REACH NUMBER | |
| SINGLE PURPOSE STRUCTURE AND NUMBER | |

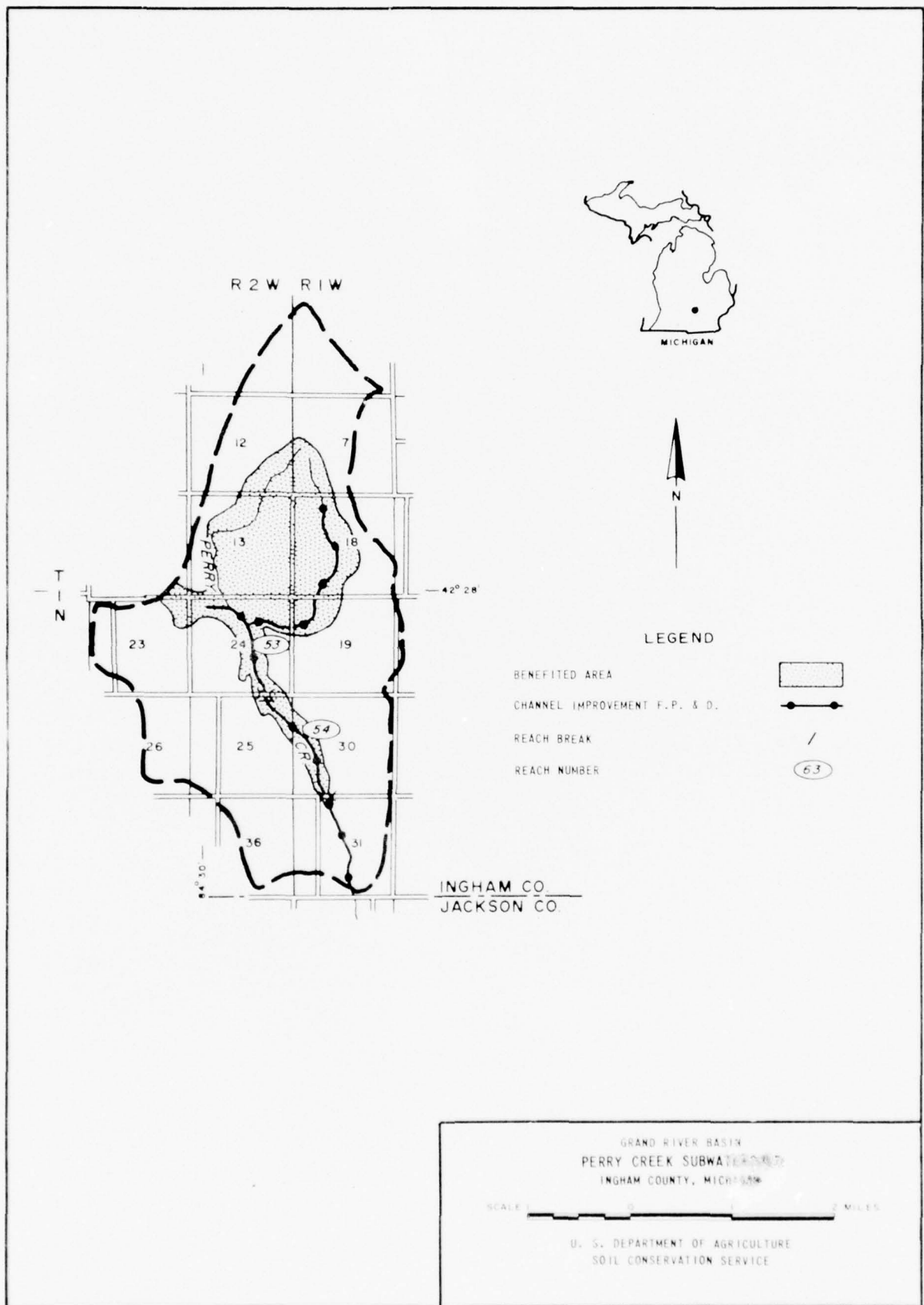
GRAND RIVER BASIN
TWIN LAKES SUBWATERSHED
JACKSON COUNTY, MICHIGAN

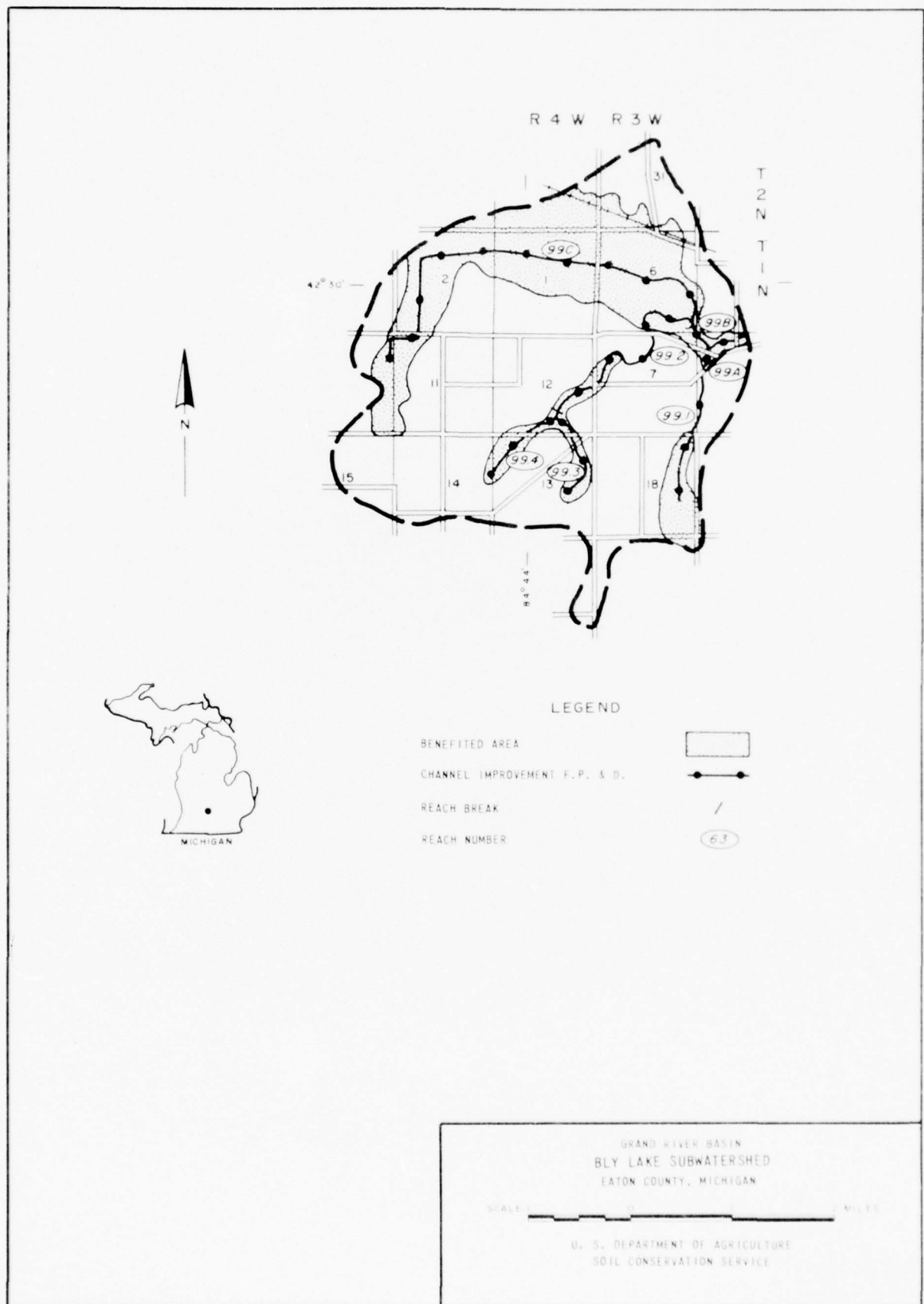
SCALE 1 0 1 2 MILES

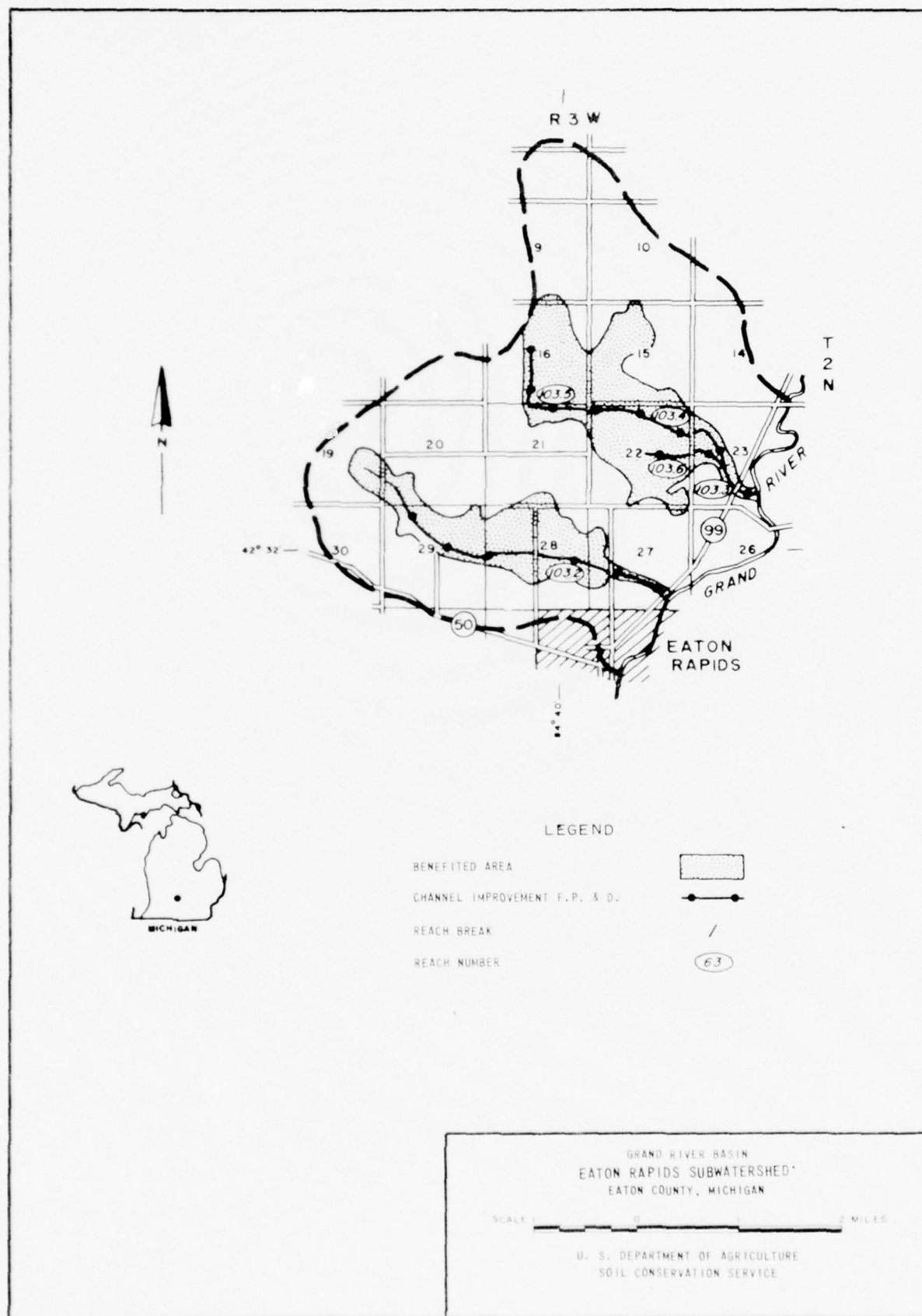
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

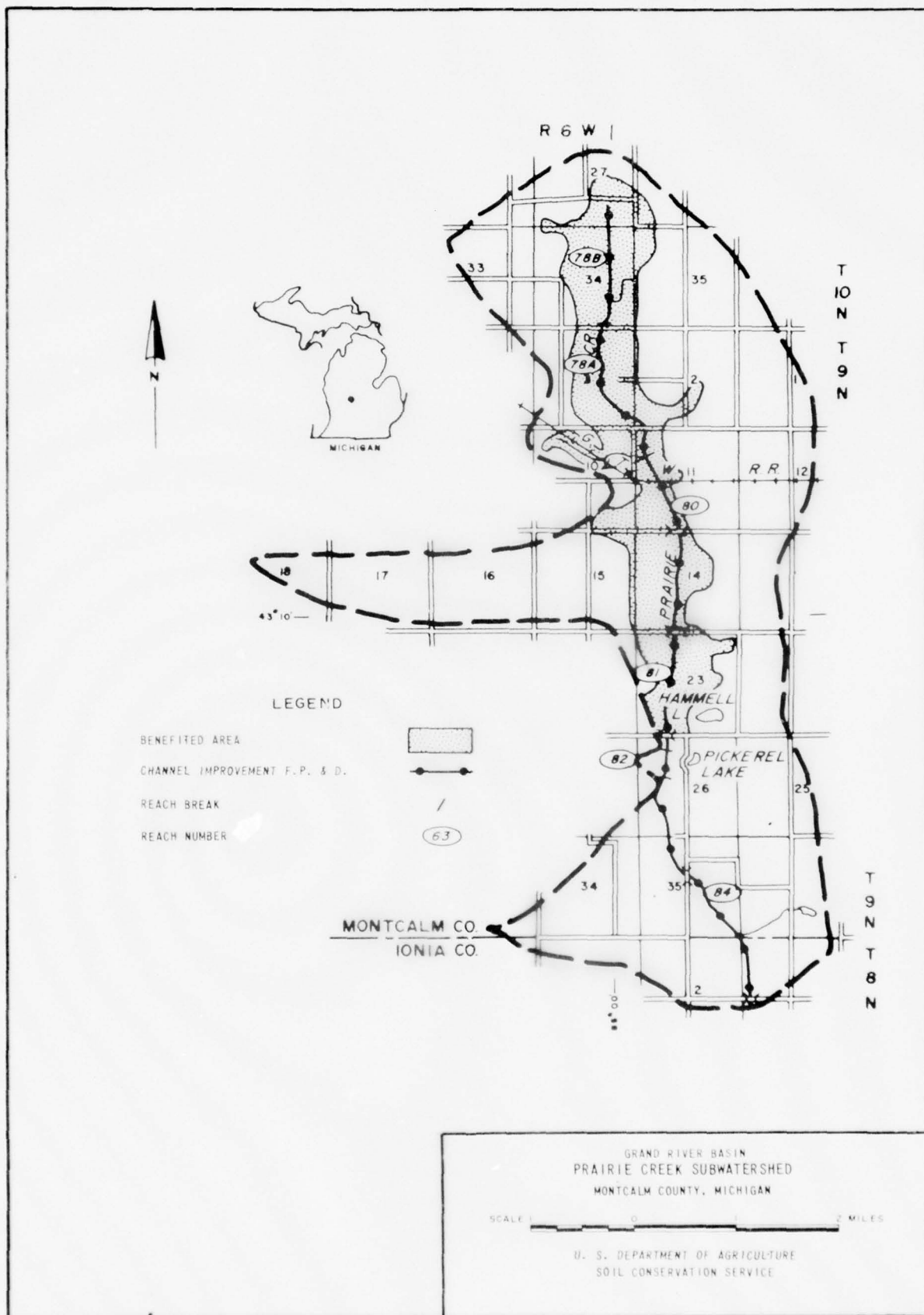


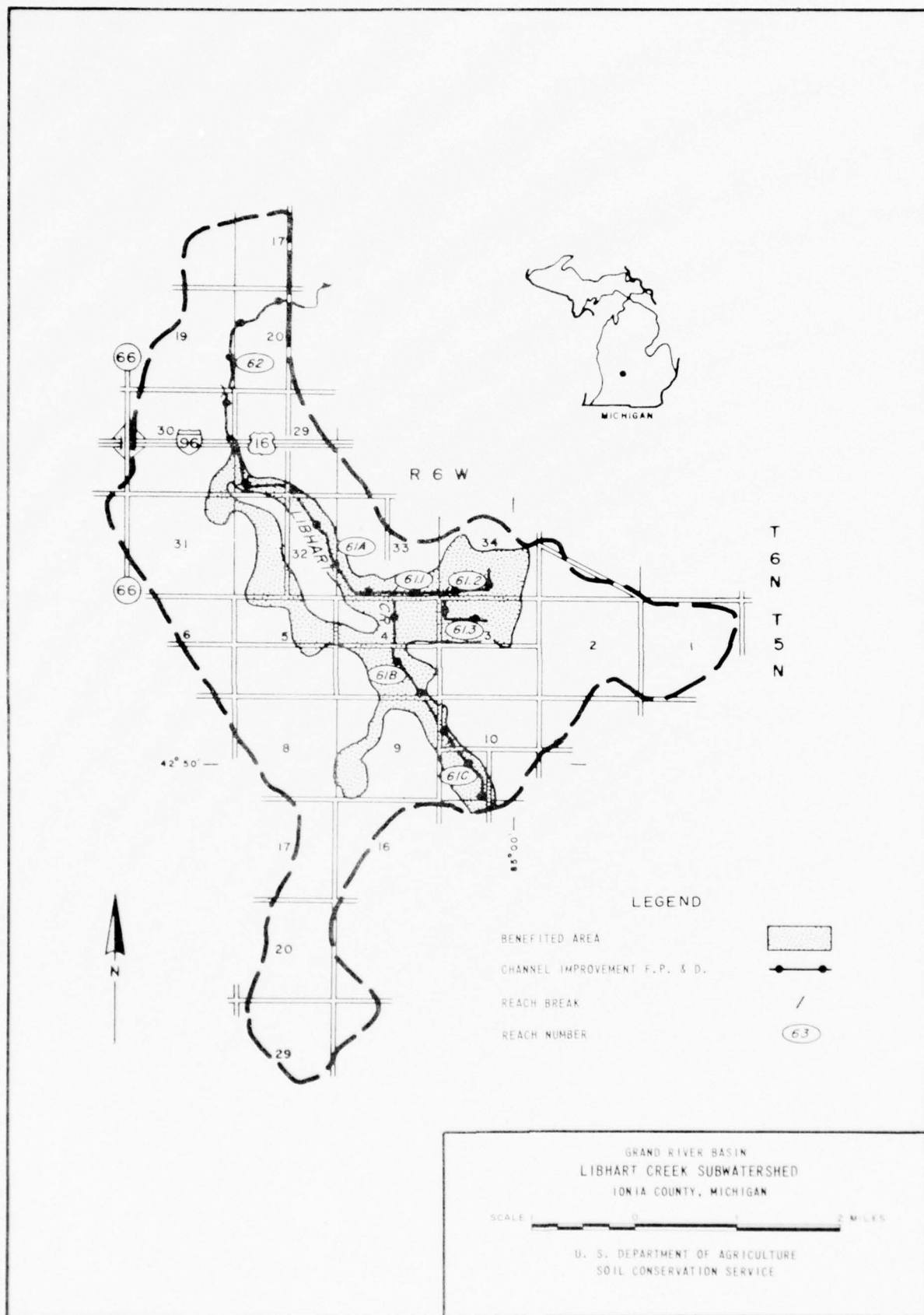


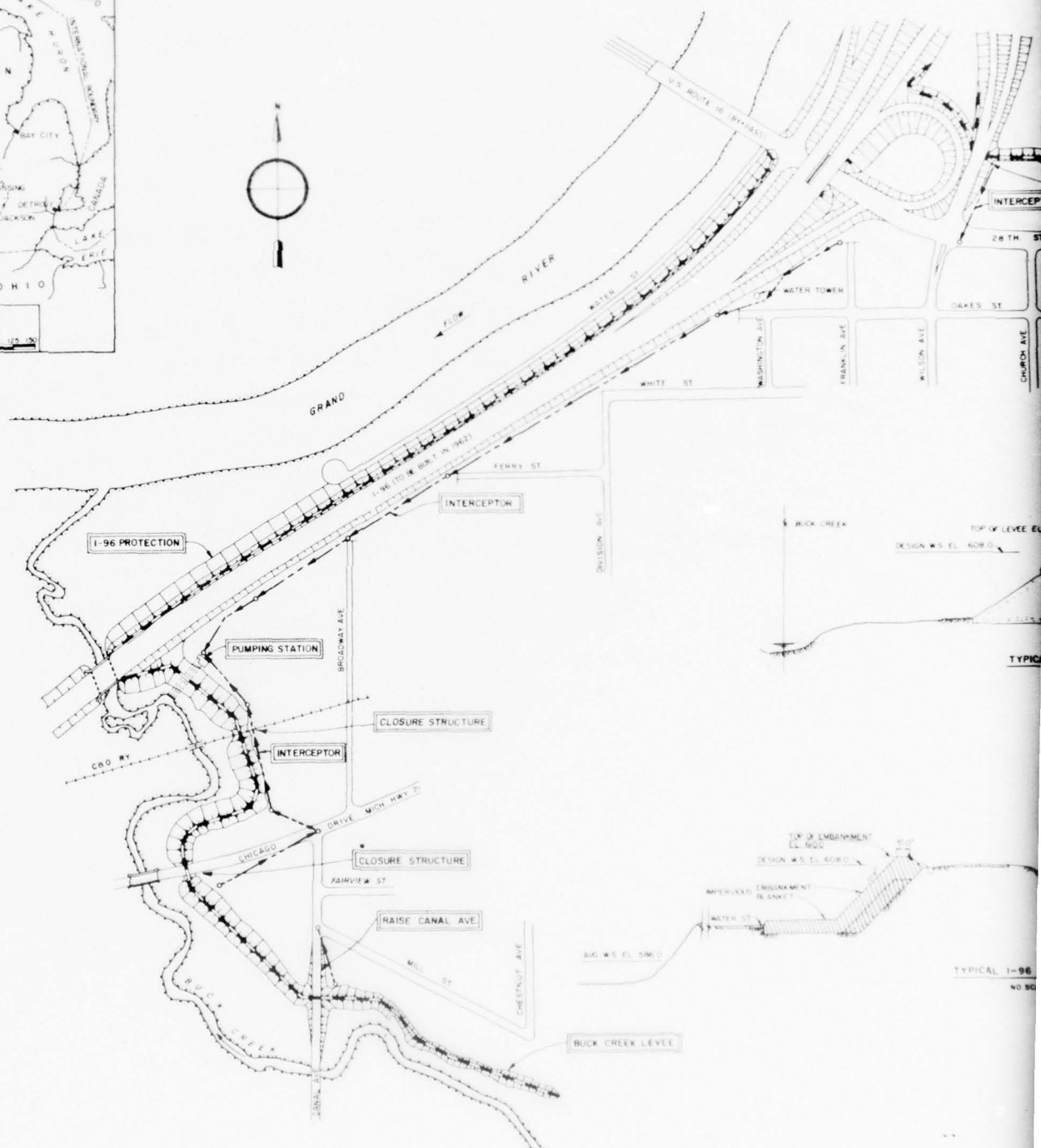




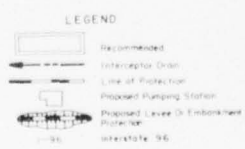
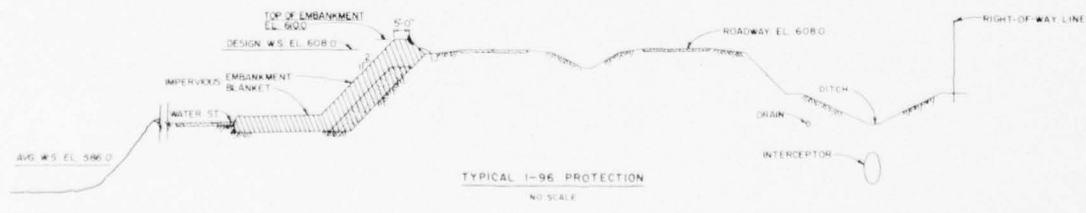
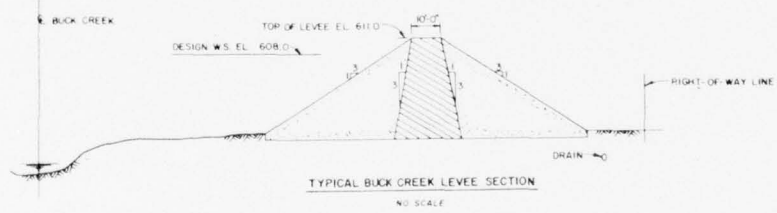








TYPICAL 1-96

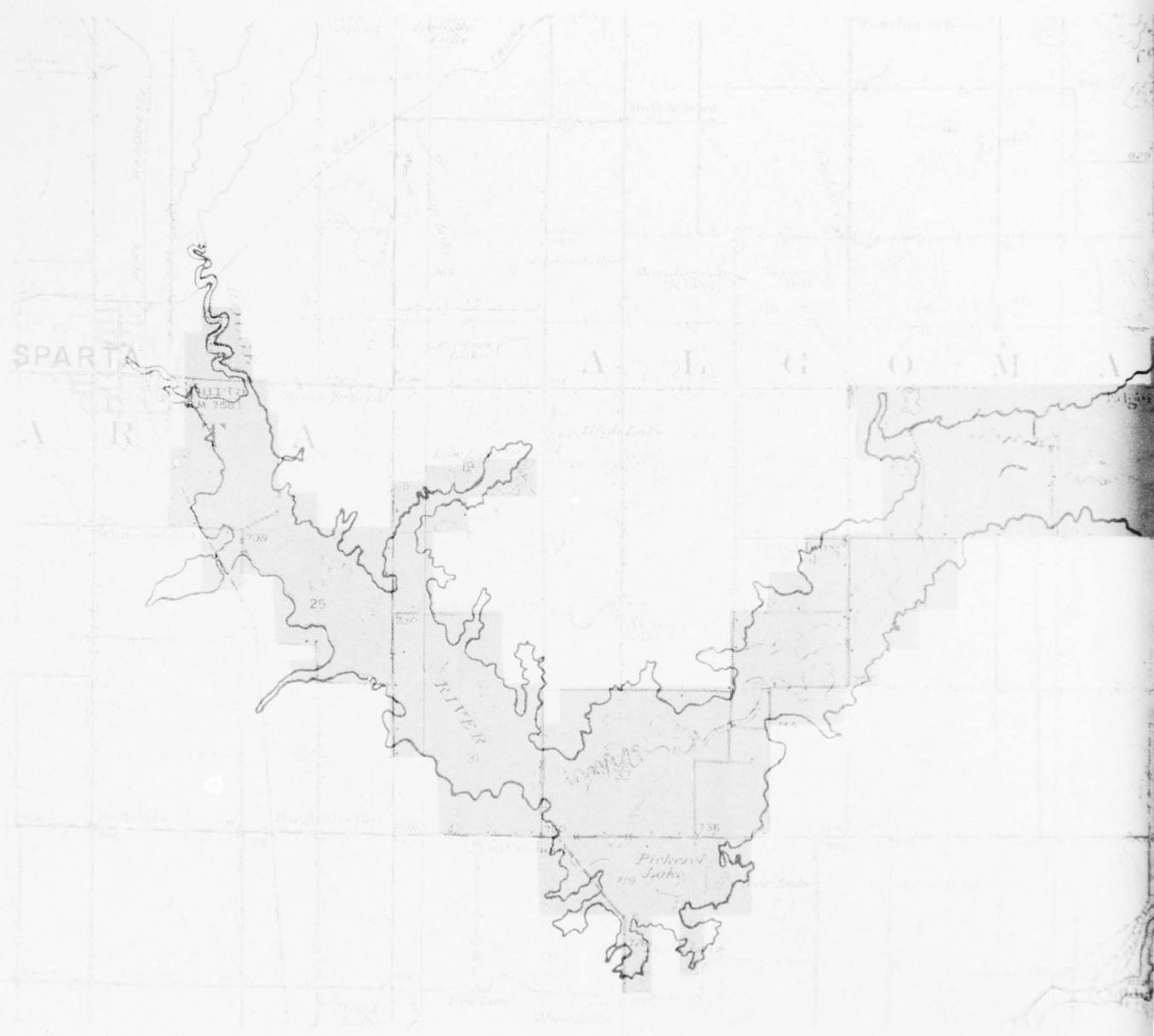


**GRAND RIVER, MICHIGAN
FLOOD CONTROL AT GRANDVILLE
PLAN OF PROTECTION**

Scale of Feet
0 100 200 300 400 500 600 700 800 900 1000

U. S. Army Engineer District, Detroit
James B. [Signature] *John [Signature]* *R. [Signature]*
 District Engineer District Engineer District Engineer




Drawn by: *[Signature]* File No. *DM 12/698* To Accompany Survey Report
 Checked by: *[Signature]* Dated 1962



SCALE OF MILES



LEGEND

-  PROPERTY LINE (ACREAGE)
-  740 CONTOUR LINE
-  PROPOSALS SHOWN ELSEWHERE IN REPORT

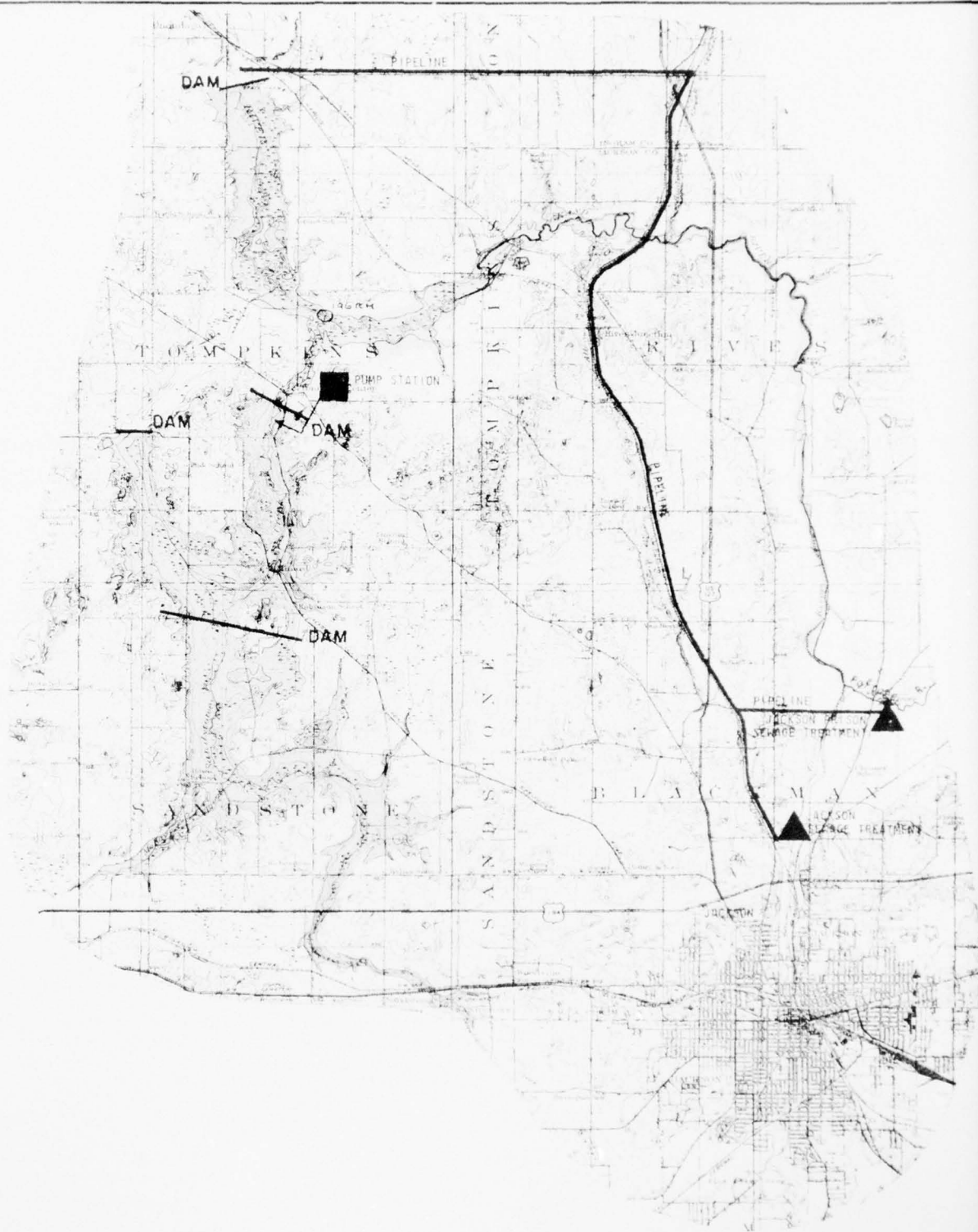
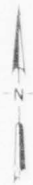
SCALE OF MILES

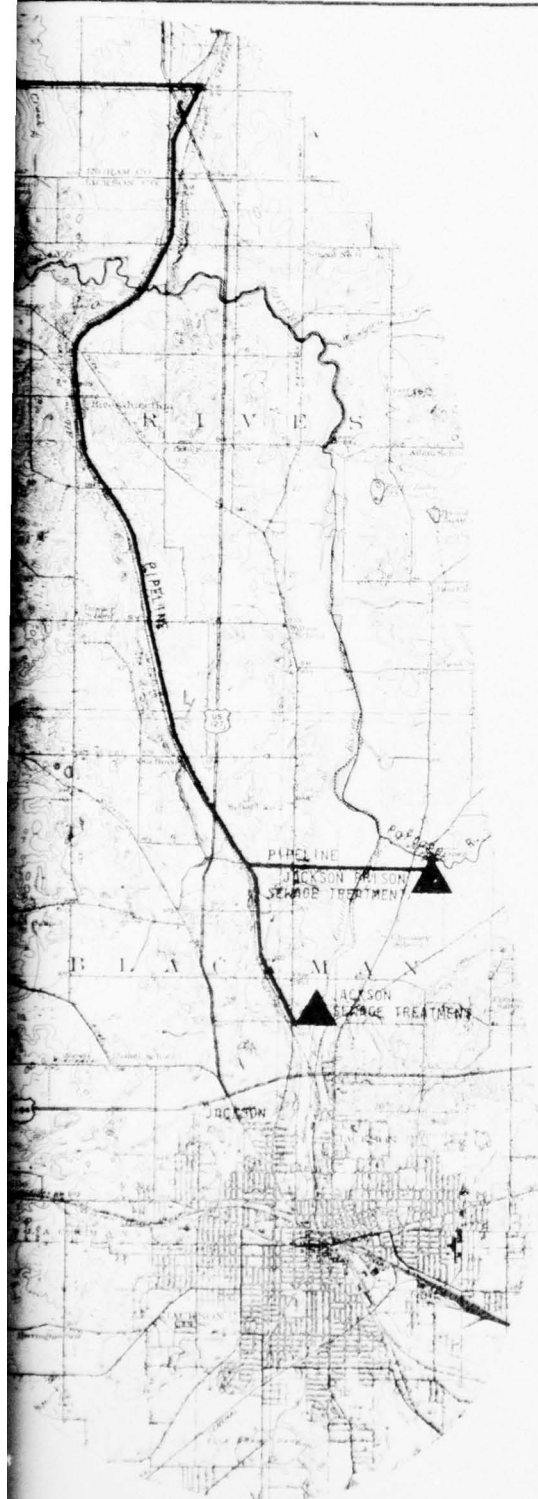
GRAND RIVER BASIN, MICHIGAN

ROGUE RIVER
RECREATION AREA

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-38





JACKSON COMPLEX

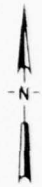
SEPARATE POOLS NAMED ONONDAGA, SANDSTONE AND MINARD MAKE UP THE JACKSON COMPLEX. ONONDAGA, THE LOWER POOL ON THE GRAND RIVER WOULD SERVE PRIMARILY FOR FLOOD CONTROL. IT MAY ALSO SERVE FOR WATER QUALITY STORAGE AND A TAILWATER POOL FOR PUMPING EXCESS FLOWS INTO SANDSTONE. THE MIDDLE POOL LOCATED ON SANDSTONE CREEK, SANDSTONE POOL WOULD BE USED TO SATISFY WATER QUALITY, RECREATION AND FISH AND WILDLIFE NEEDS. THE REQUIRED WATER TO FILL THIS POOL WOULD BE OBTAINED FROM GRAND RIVER FLOWS AND PUMPING FROM ONONDAGA. MINARD, THE UPPER POOL, IS LOCATED ON SANDSTONE CREEK AND WOULD BE MANAGED FOR A CONSTANT POOL ELEVATION FOR RECREATIONAL AND FISH AND WILDLIFE NEEDS. THE MAXIMUM POOL ELEVATIONS IN FEET WOULD BE, ONONDAGA 905, SANDSTONE 950, AND MINARD 950.

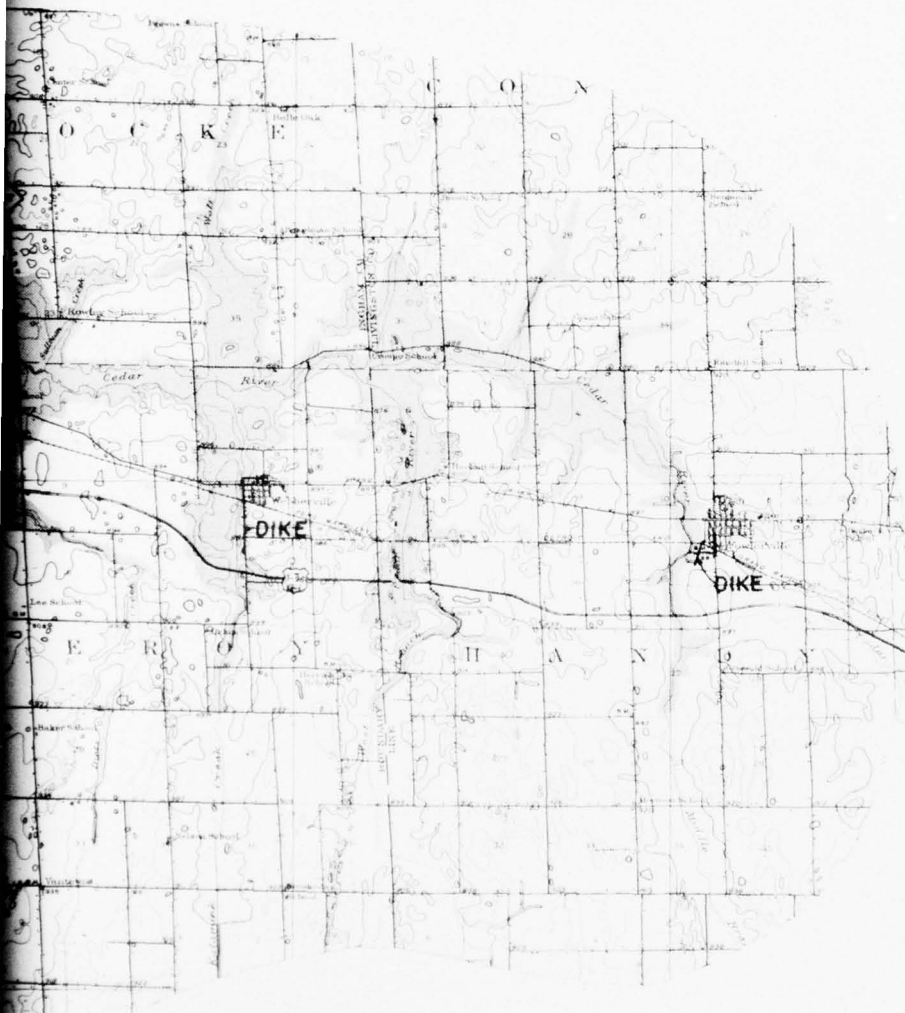
GRAND RIVER BASIN, MICHIGAN UPPER GRAND RIVER RESERVOIR SYSTEM (JACKSON COMPLEX)

ONONDAGA POOL, SANDSTONE POOL,
MINARD POOL

SCALE OF FEET

U.S. ARMY ENGINEER DISTRICT, DETROIT





RED CEDAR COMPLEX

THIS COMPLEX WOULD BE COMPRISED OF THREE SEPARATE POOLS. OKEMOS, THE LOWER POOL WOULD BE ON THE MAIN STEM OF THE RED CEDAR RIVER AND WOULD BE MANAGED PRIMARILY AS A FLOOD CONTROL OR DRY POOL. WILLIAMSTON, THE MIDDLE POOL WOULD ALSO BE ON THE MAIN STEM AND WOULD BE A FLUCTUATING POOL. MAJOR STORAGE CAPACITY WOULD BE FOR FLOOD CONTROL WITH ADDITIONAL STORAGE FOR WATER QUALITY. DOAN THE UPPER POOL, WOULD BE LOCATED ON DOAN CREEK. IT WOULD CONTAIN A STABLE POOL FOR RECREATION AND FISH AND WILDLIFE NEEDS. THE MAXIMUM POOL ELEVATIONS, IN FEET, WOULD BE, OKEMOS 865, WILLIAMSTON 884; AND DOAN 900 FEET.

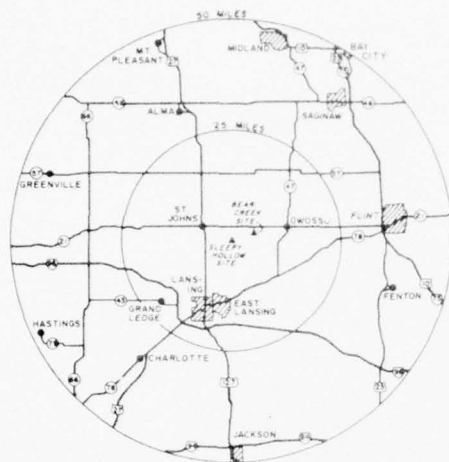
GRAND RIVER BASIN, MICHIGAN UPPER GRAND RIVER RESERVOIR SYSTEM (RED CEDAR COMPLEX)

OKEMOS POOL, WILLIAMSTON POOL,

DOAN POOL

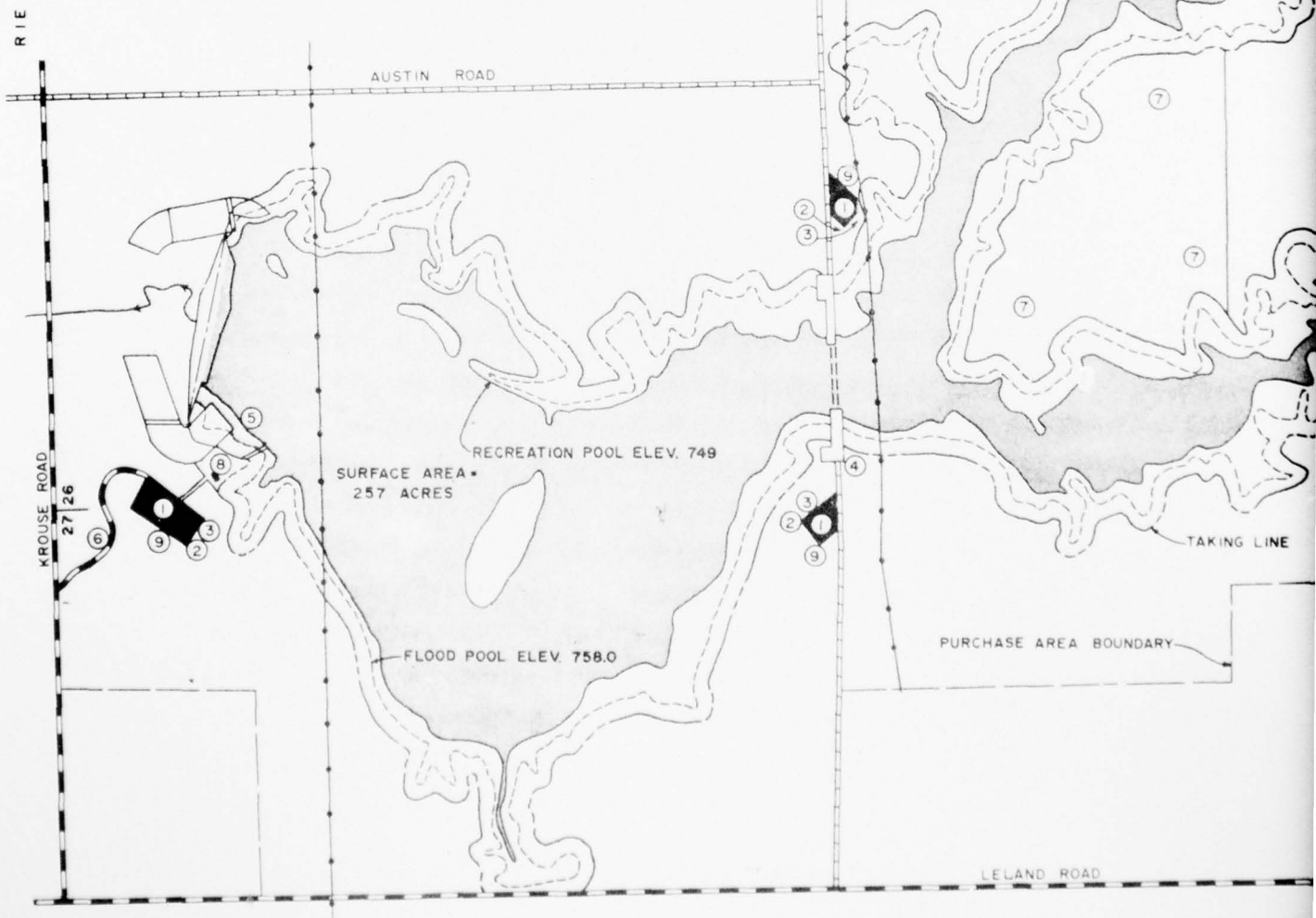
SCALE OF FEET

U.S. ARMY ENGINEER DISTRICT, DETROIT



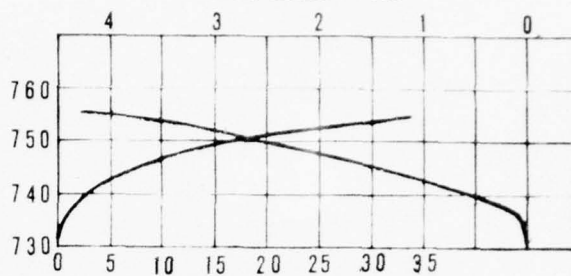
POPULATION CENTERS AND HIGHWAYS
WITHIN 50 MILE RADIUS

SCALE 0 5 10 20 30 40 MILES



ELEVATION IN FEET ABOVE MSL

AREA ACRES X 100



CAPACITY - ACRE FEET X 100
AREA CAPACITY RELATIONSHIPS

LEGEND

- ① PARKING LOT
- ② WELL
- ③ TOILET
- ④ BOAT RAMP
- ⑤ SAND BEACH
- ⑥ ROAD
- ⑦ PRIMITIVE CAMPING AREA
- ⑧ BEACH HOUSE
- ⑨ PICNIC AREA



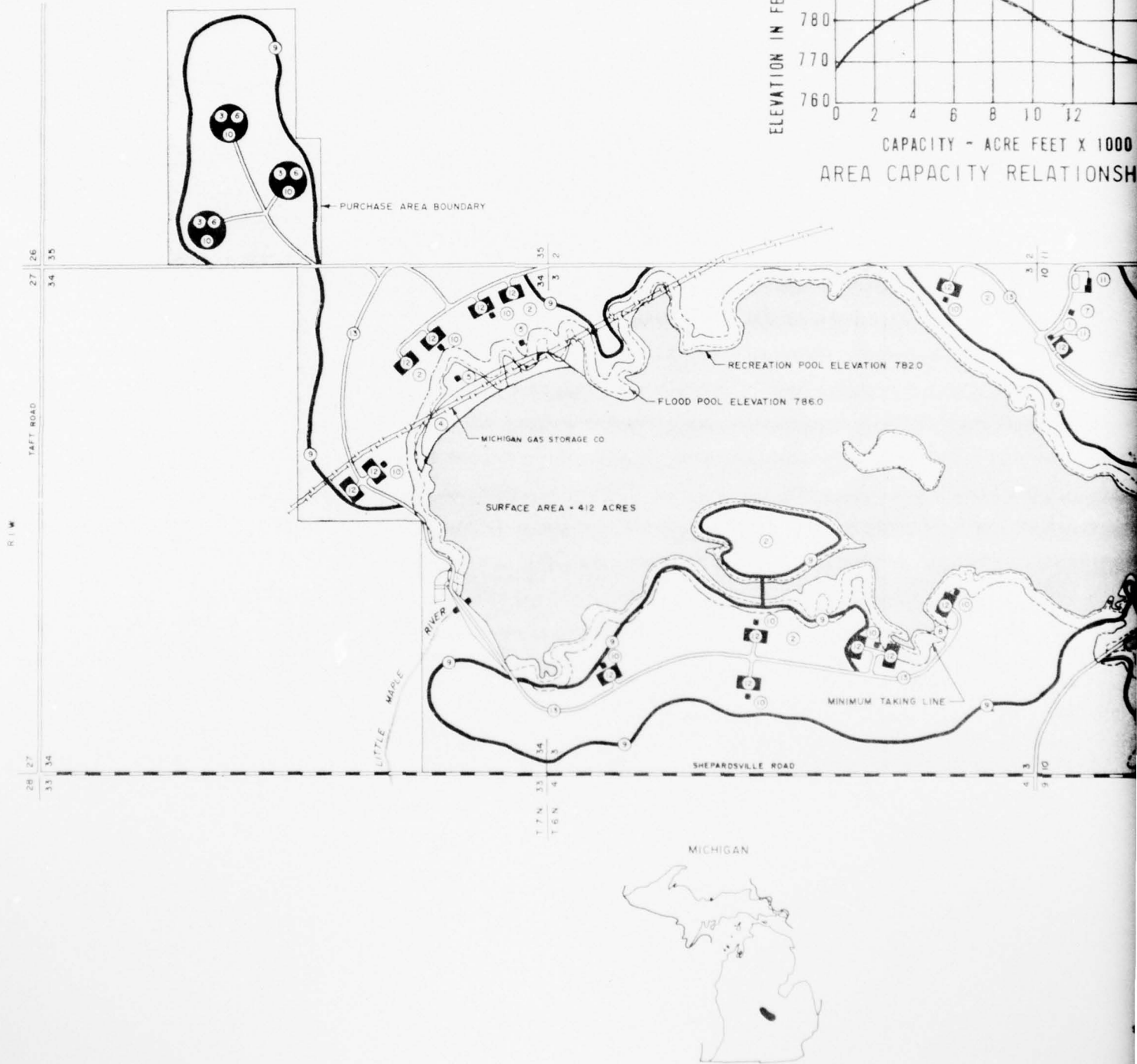
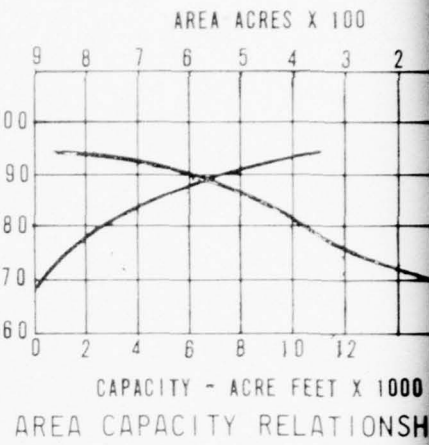
GRAND RIVER BASIN, MICHIGAN

UPPER MAPLE RIVER WATERSHED

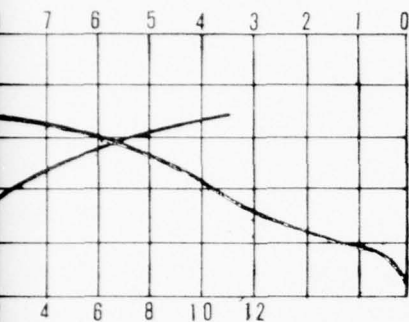
SHIAWASSEE COUNTY, MICHIGAN

SITE 109 BEAR CREEK MULTIPLE PURPOSE STRUCTURE
PUBLIC RECREATION DEVELOPMENT

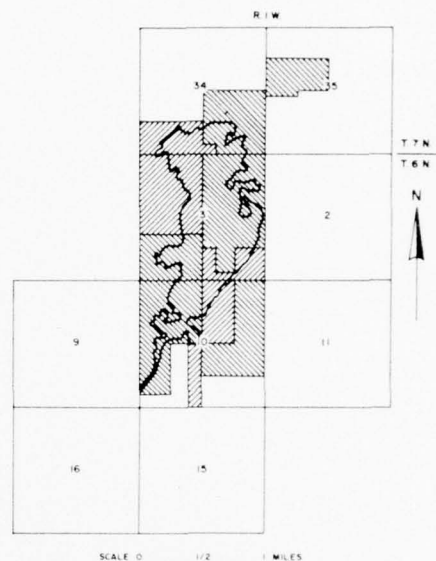
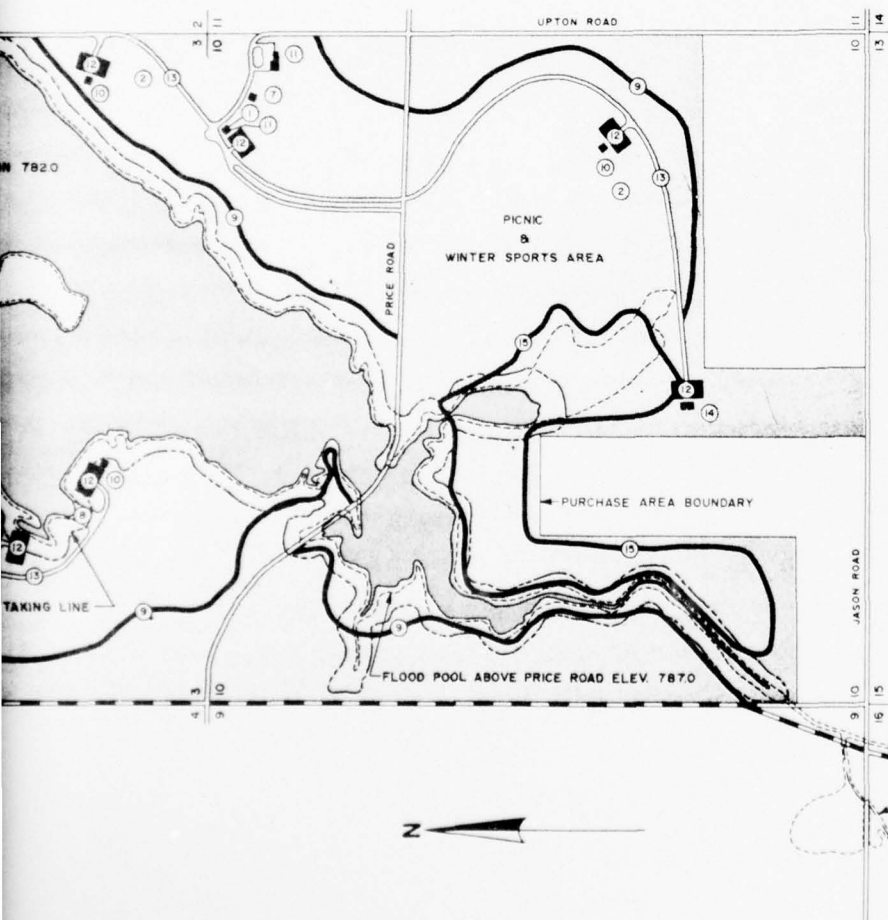
SCALE 600 0 600 1200 1800 2400 FEET



AREA - ACRES X 100



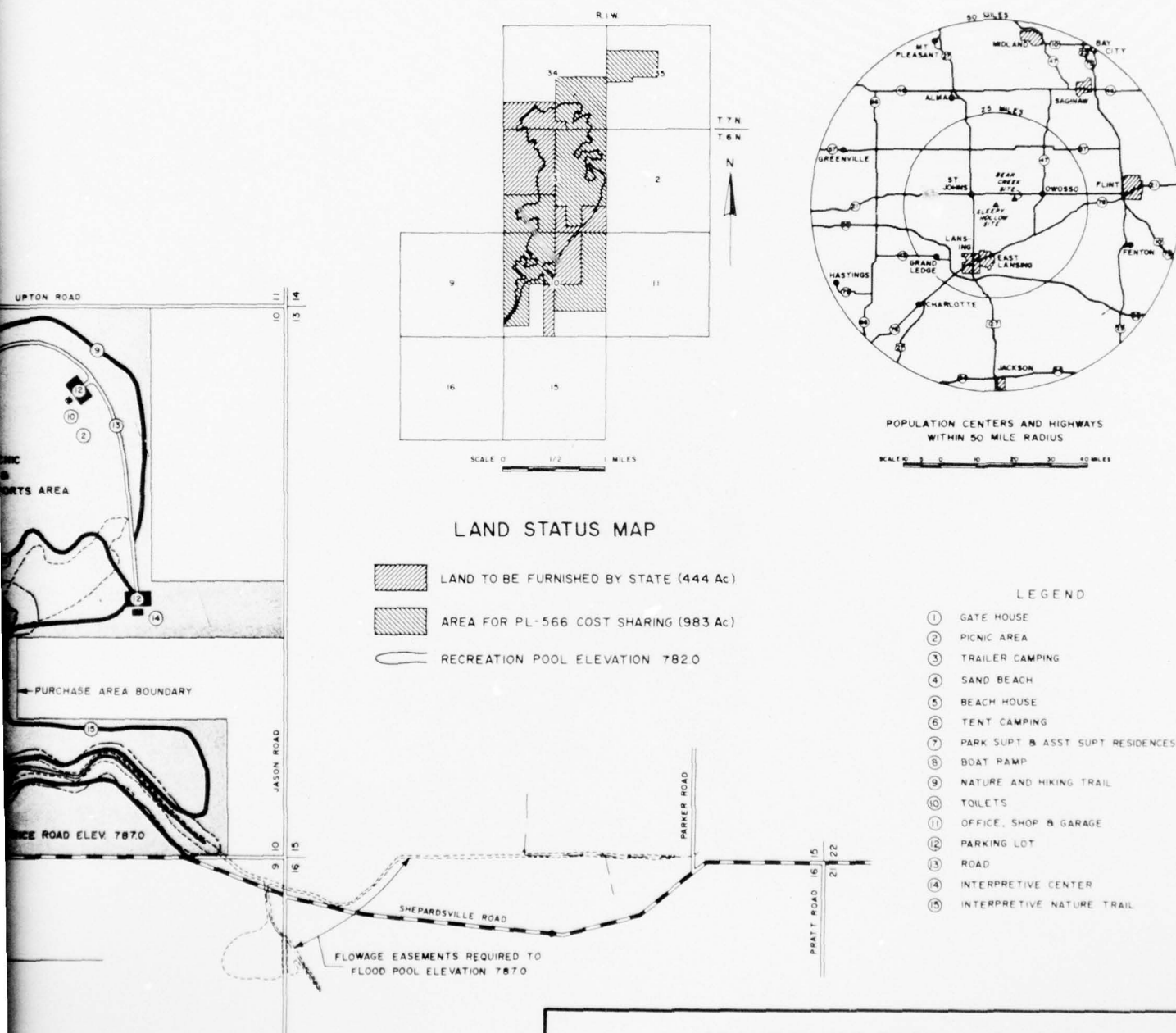
CAPACITY - ACRES FEET X 1000
CAPACITY RELATIONSHIPS



LAND STATUS MAP

- LAND TO BE FURNISHED BY STATE (444 Ac)
- AREA FOR PL-566 COST SHARING (983 Ac)
- RECREATION POOL ELEVATION 7820

GRAND RIVER BASIN
UPPER MAPLE RIVER
CLINTON COUNTY
SITE 110 SLEEPY HOLLOW MULTIPLE
PUBLIC RECREATION



GRAND RIVER BASIN, MICHIGAN

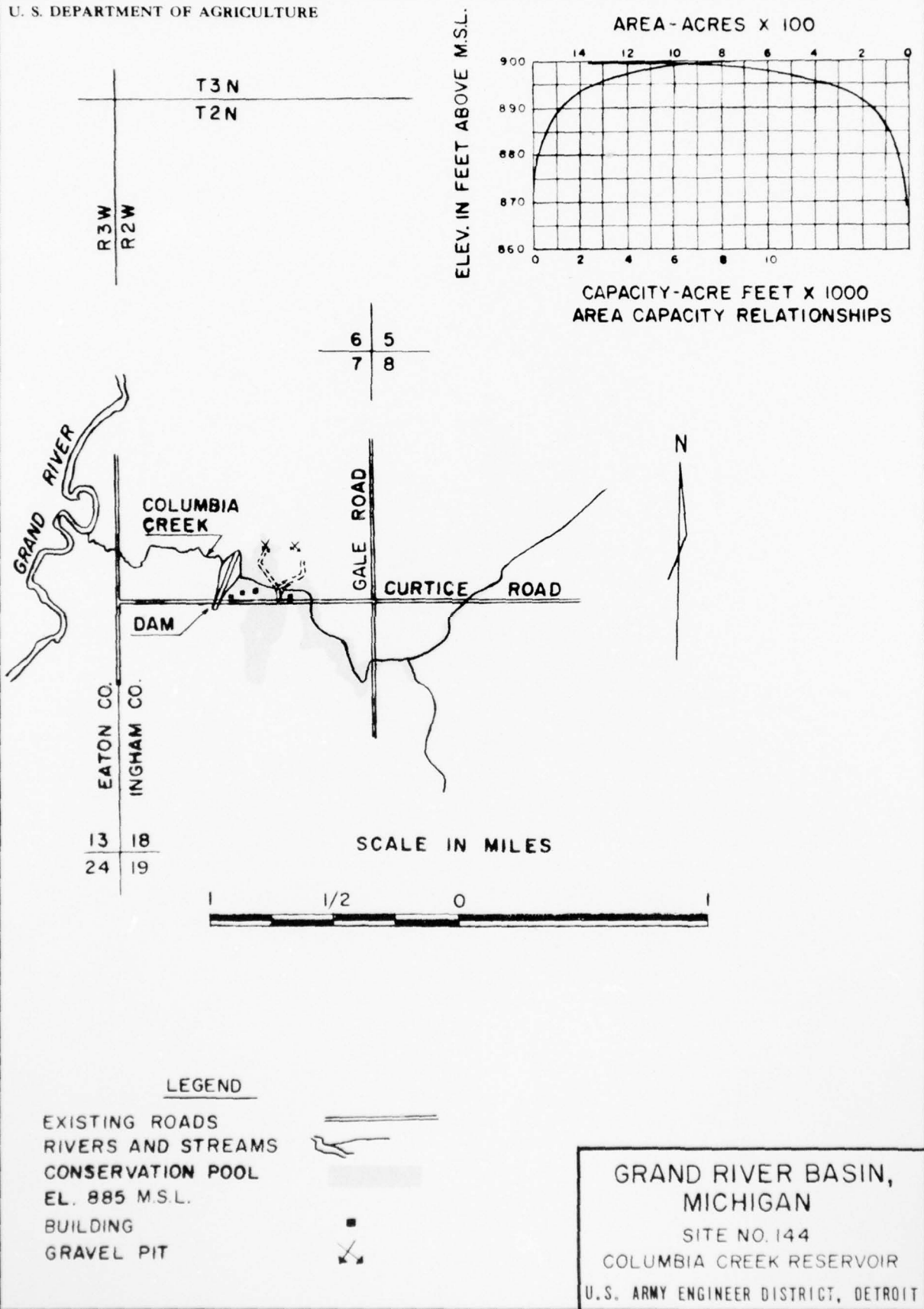
UPPER MAPLE RIVER WATERSHED

CLINTON COUNTY, MICHIGAN

SITE 110 SLEEPY HOLLOW MULTIPLE PURPOSE STRUCTURE

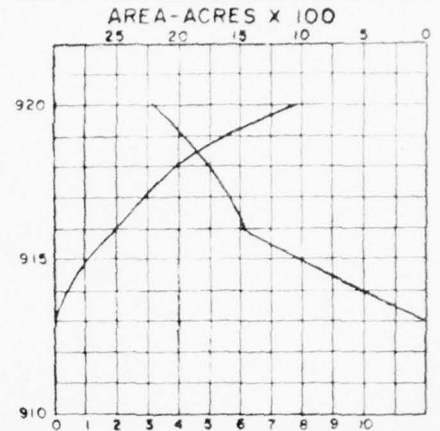
PUBLIC RECREATION DEVELOPMENT

U. S. DEPARTMENT OF AGRICULTURE

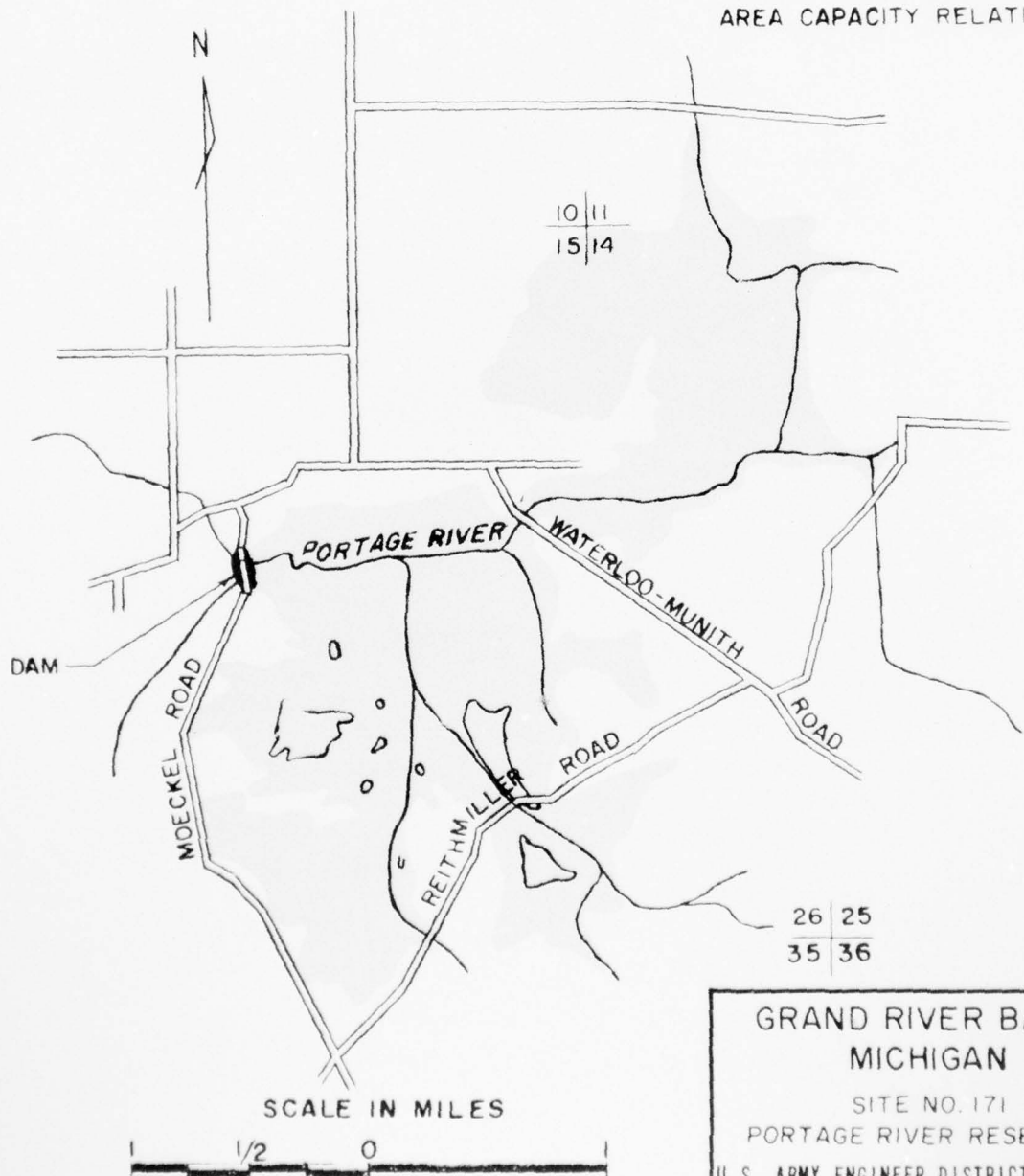


U. S. DEPARTMENT OF AGRICULTURE

LEGEND
EXISTING ROADS
RIVERS AND STREAMS
CONSERVATION POOL
EL. 920 M.S.L.



CAPACITY-ACRE FEET X 1000
AREA CAPACITY RELATIONSHIPS

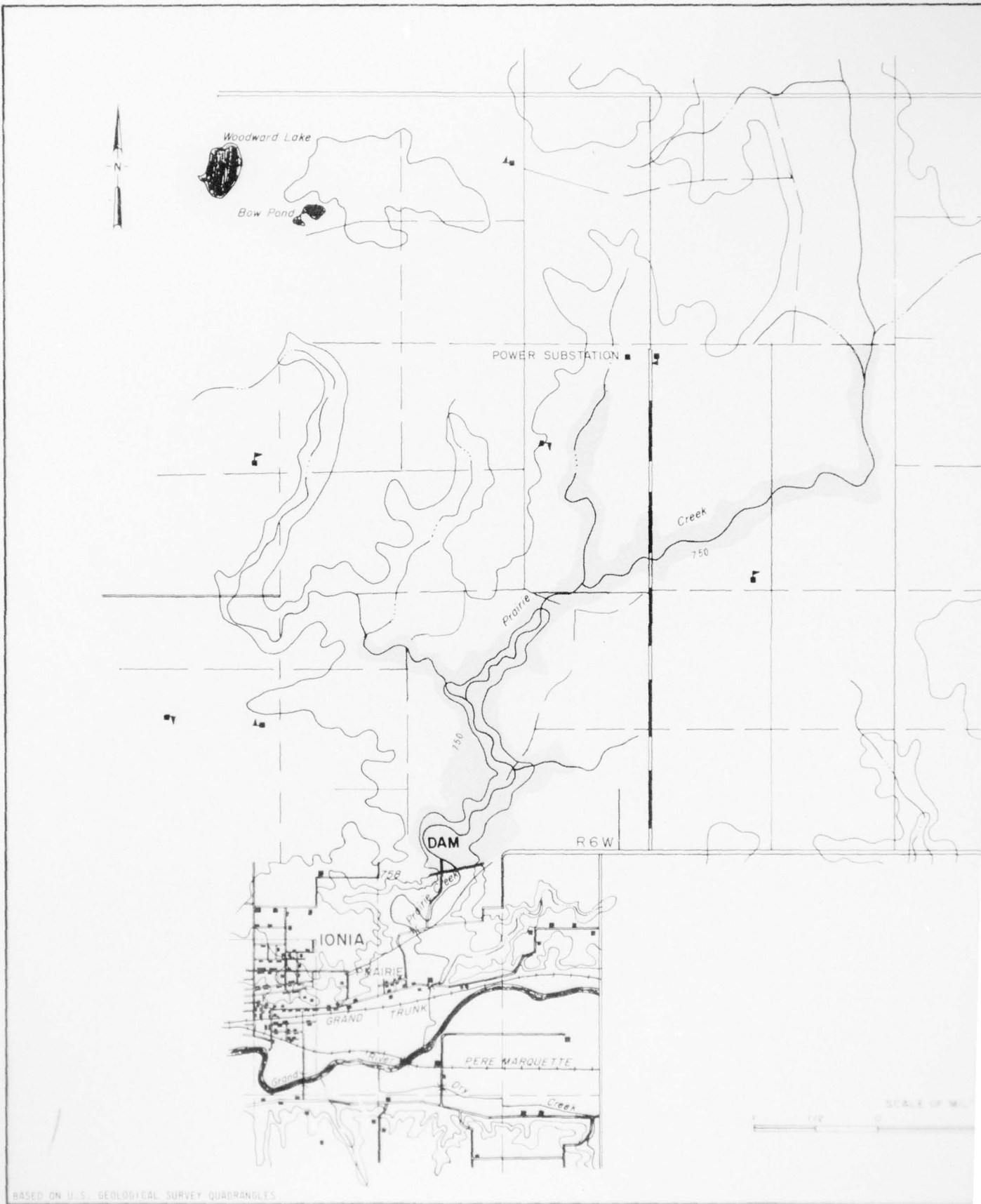


JACKSON CO.
INGHAM CO.

GRAND RIVER BASIN,
MICHIGAN

SITE NO. 171
PORTAGE RIVER RESERVOIR
U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-44



AD-A043 989

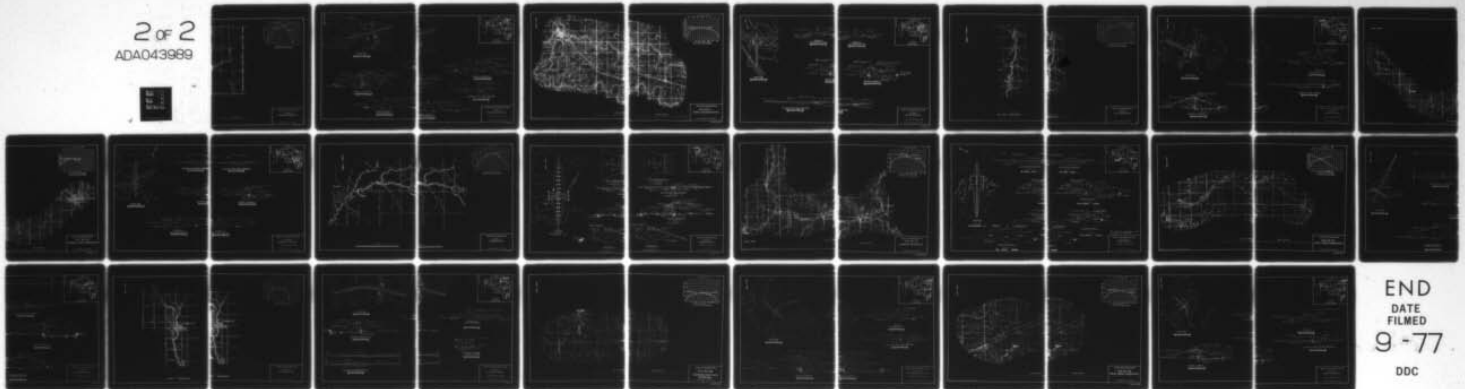
GRAND RIVER BASIN COORDINATING COMMITTEE DETROIT MI
GRAND RIVER BASIN MICHIGAN. COMPREHENSIVE WATER RESOURCES STUDY--ETC(U)
AUG 73

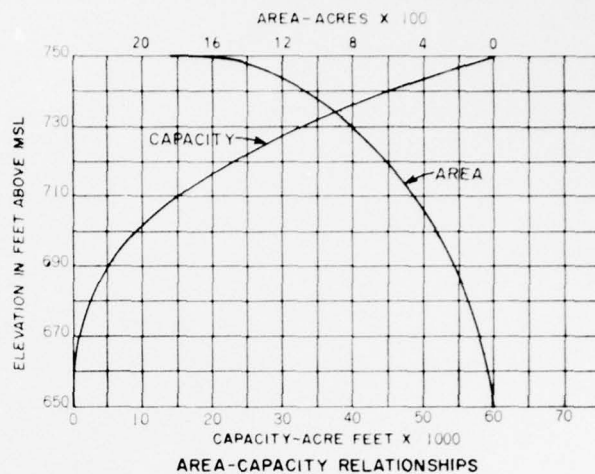
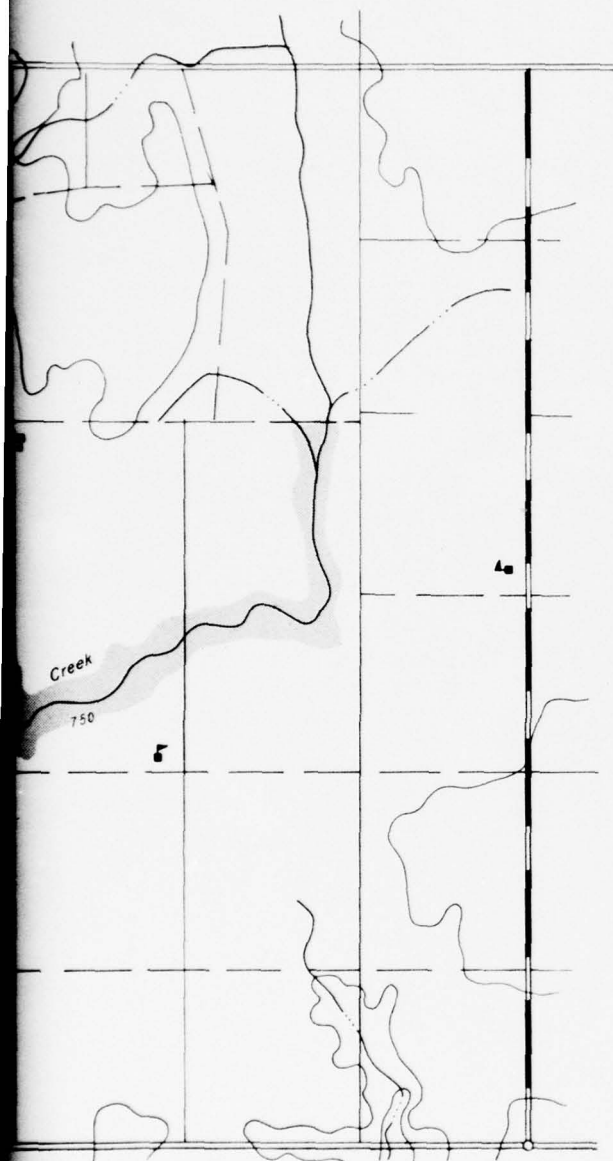
F/G 8/6

UNCLASSIFIED

NL

2 of 2
ADA043989

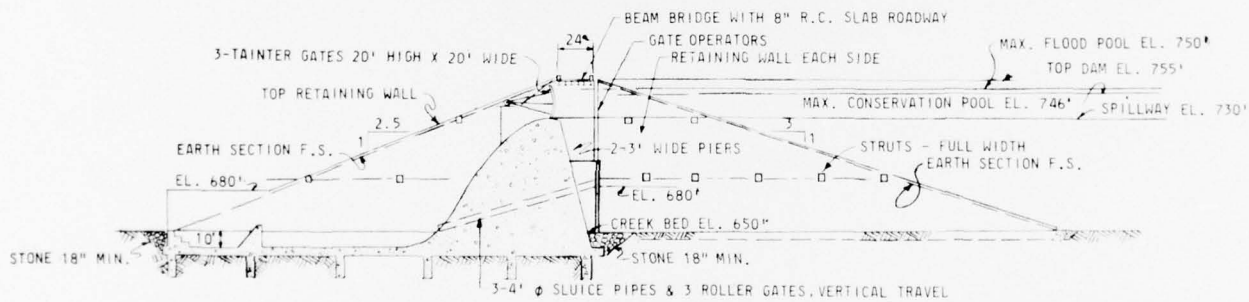
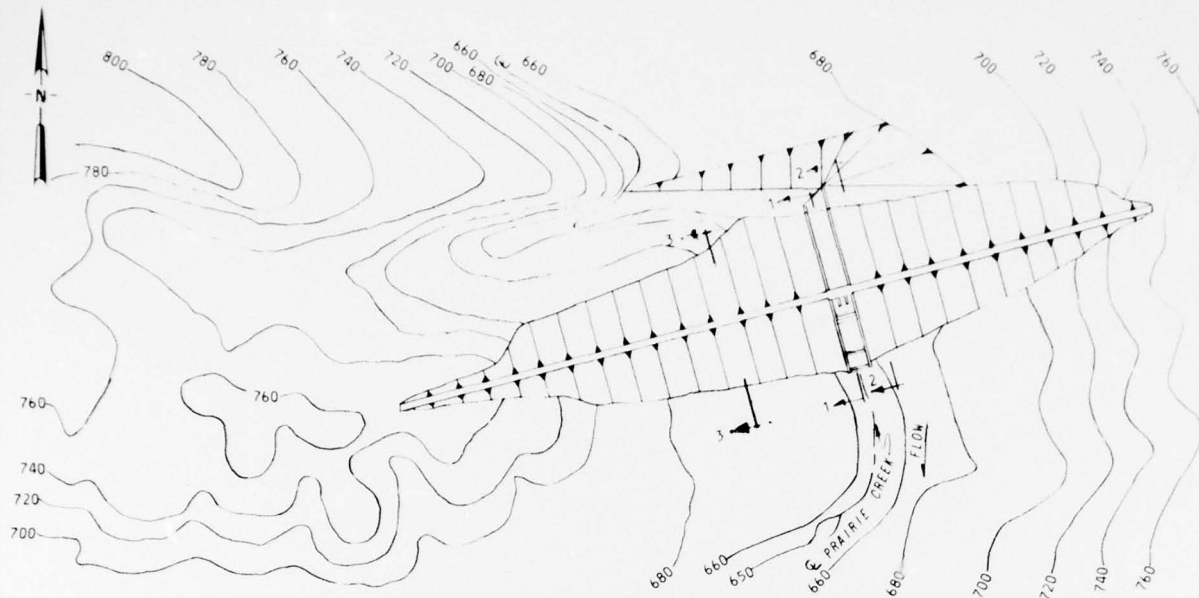




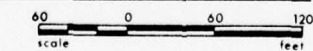
GRAND RIVER BASIN, MICHIGAN

SITE NO. 42
PRAIRIE CREEK RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT

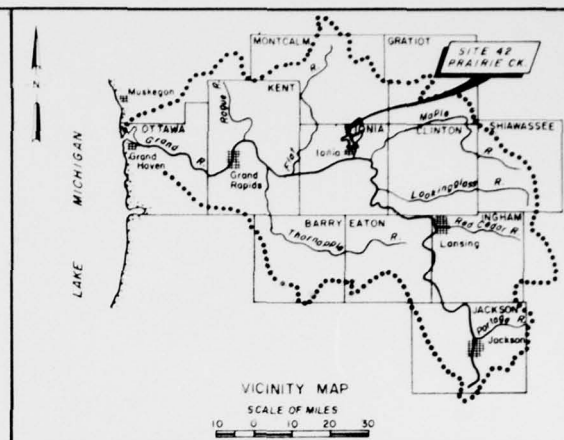
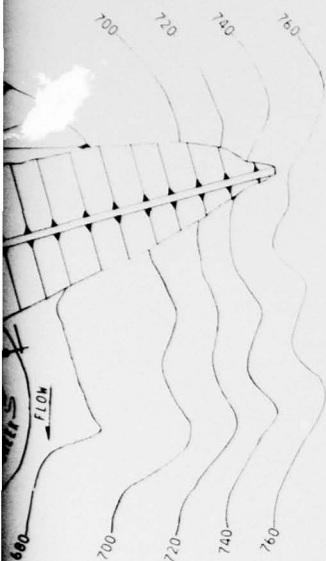


SECTIONAL ELEVATION I-I



SECTIONAL ELEVATION 3-3

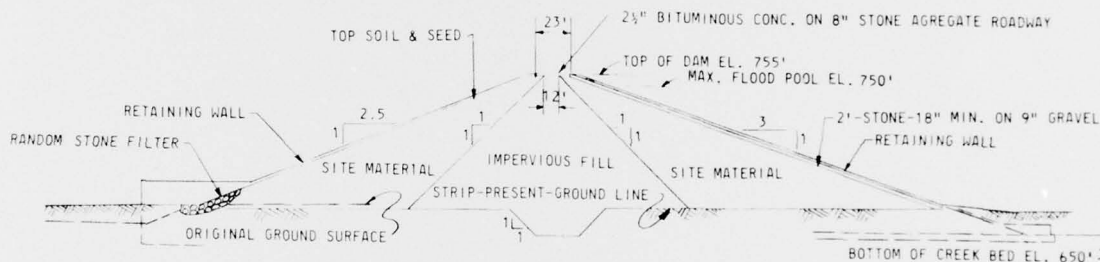




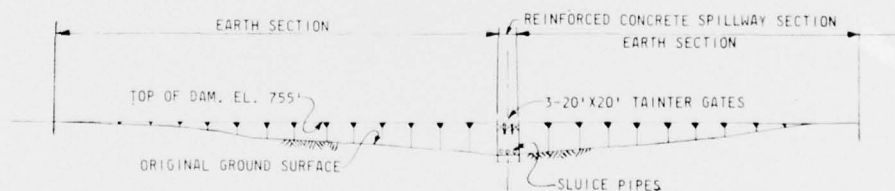
SLAB ROADWAY
SIDE
MAX. FLOOD POOL EL. 750'
TOP DAM EL. 755'
CONSERVATION POOL EL. 746'
SPILLWAY EL. 730'

STRUTS - FULL WIDTH
EARTH SECTION F.S.

VERTICAL TRAVEL

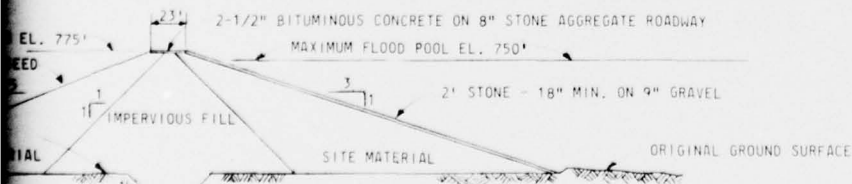


SECTIONAL ELEVATION 2-2
60 0 60 120
scale feet



ELEVATION OF DAM LOOKING UPSTREAM

300 0 300 600
scale feet



SECTIONAL ELEVATION 3-3
TYPICAL EARTH SECTION
0 60 120
scale feet

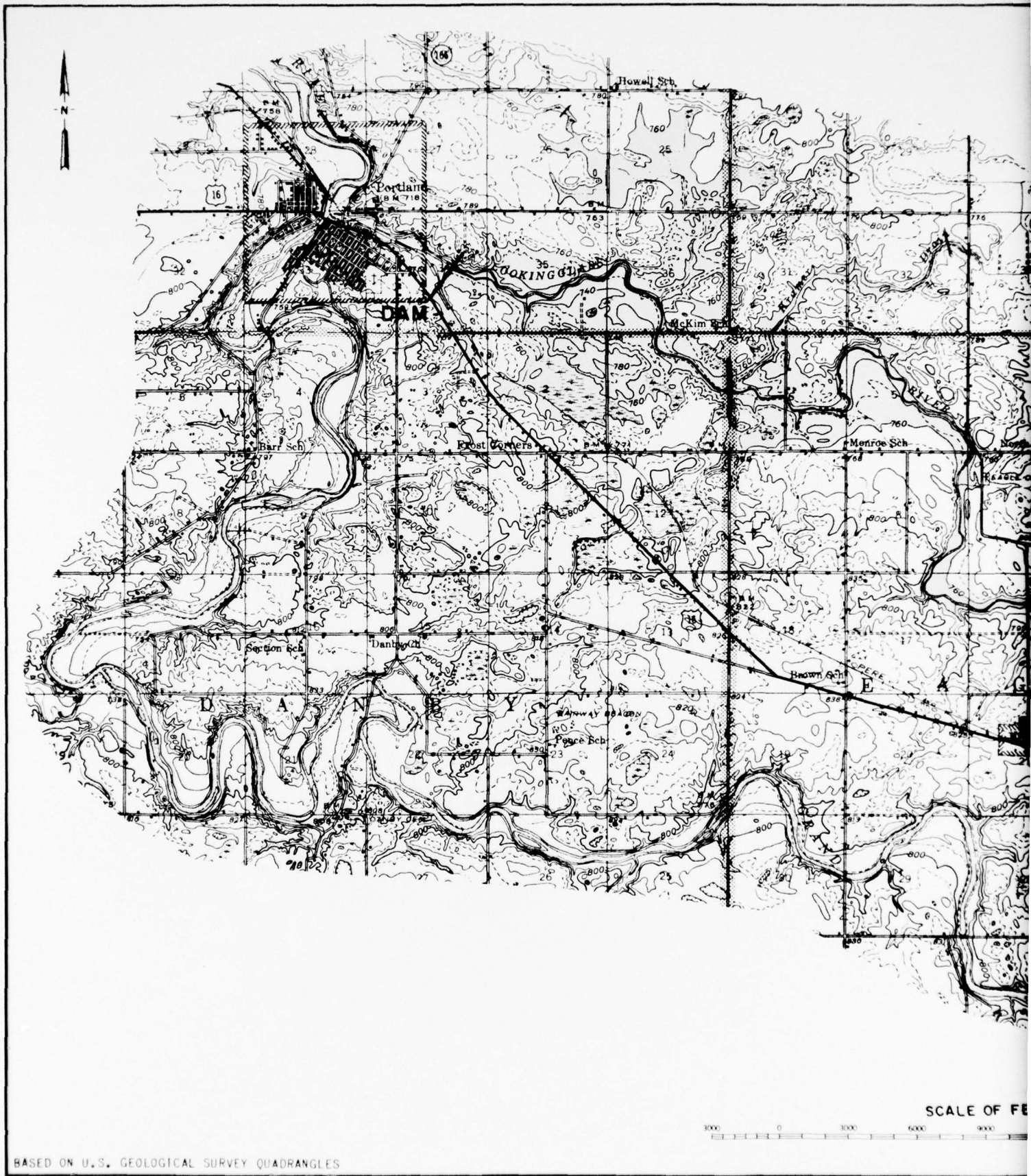
GRAND RIVER BASIN, MICHIGAN

SITE NO. 42

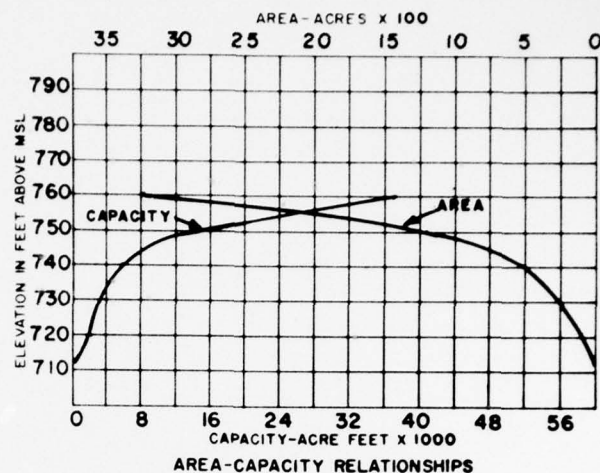
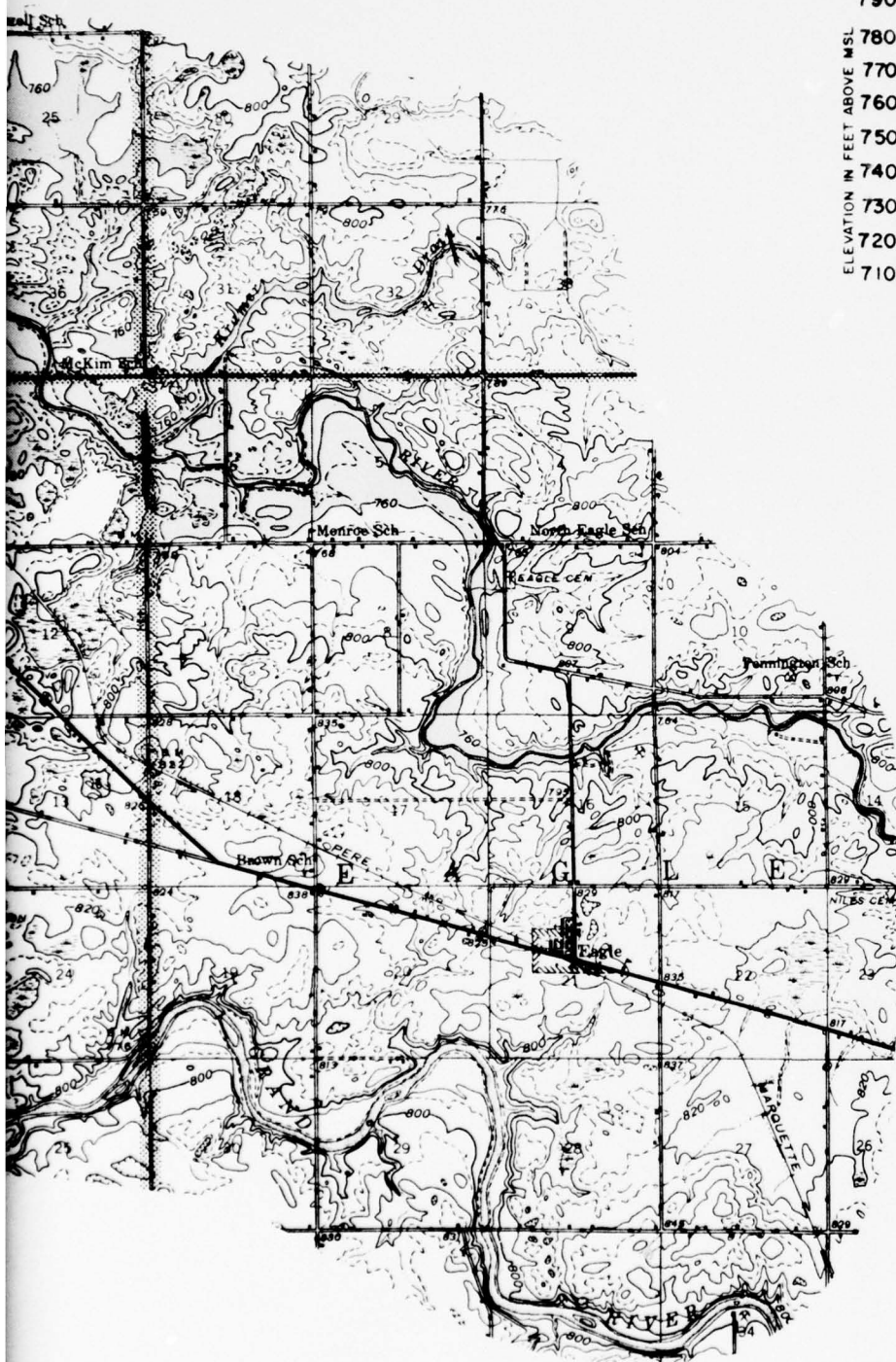
PRAIRIE CREEK RESERVOIR

PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT

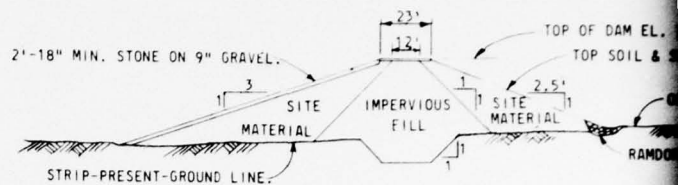
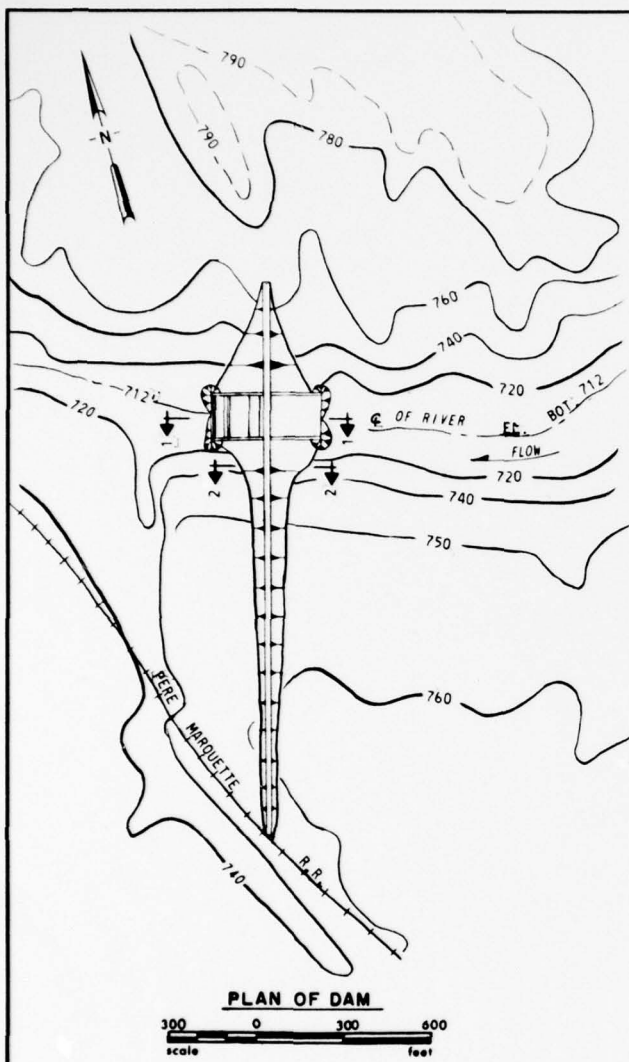


BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



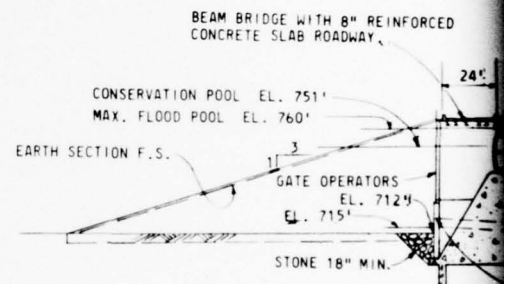
GRAND RIVER BASIN, MICHIGAN
 SITE NO. 51
 PORTLAND RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT



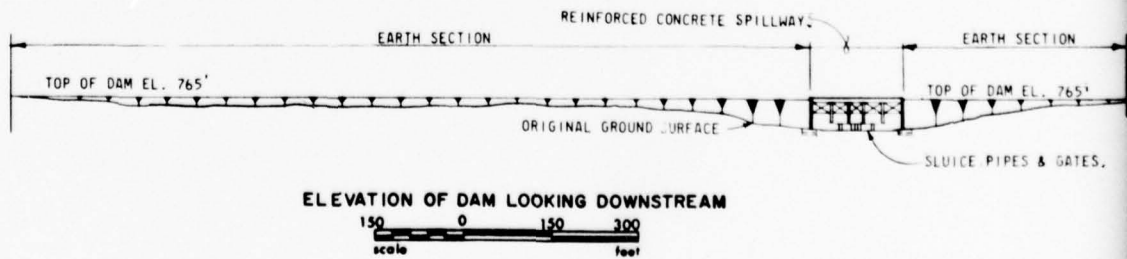
SECTION 2-2
TYPICAL FOR EARTH SECTIONS

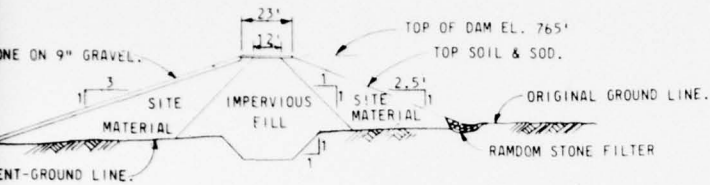
Scale: 0 to 40 feet.



SECTIONAL EL.

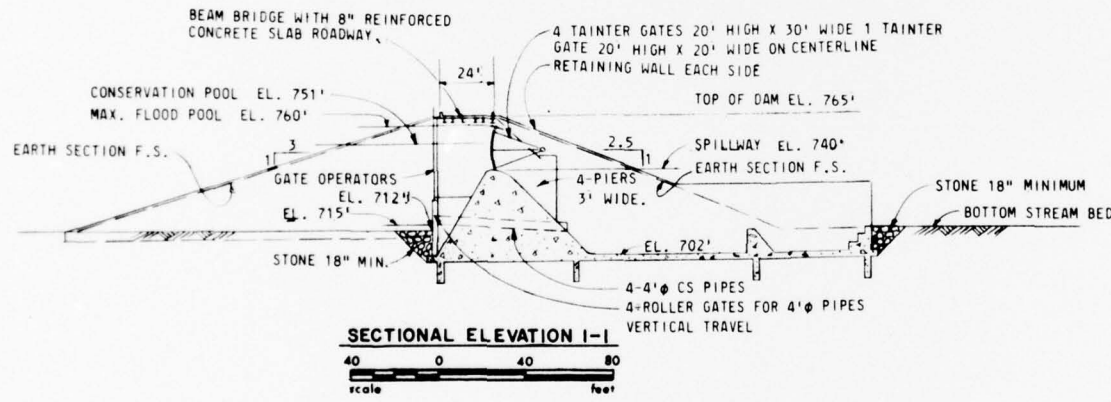
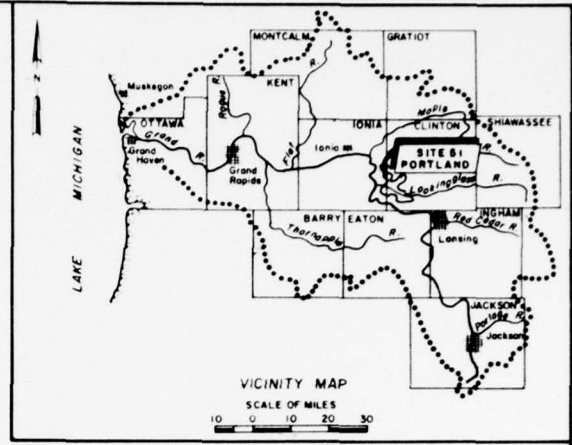
Scale: 0 to 40 feet.





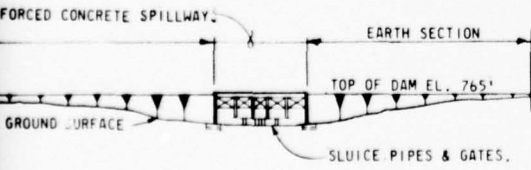
SECTION 2-2
TYPICAL FOR EARTH SECTIONS

Scale: 0 20 40 feet



SECTIONAL ELEVATION 1-1

Scale: 0 40 80 feet



DOWNSTREAM

Scale: 0 100 feet

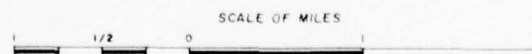
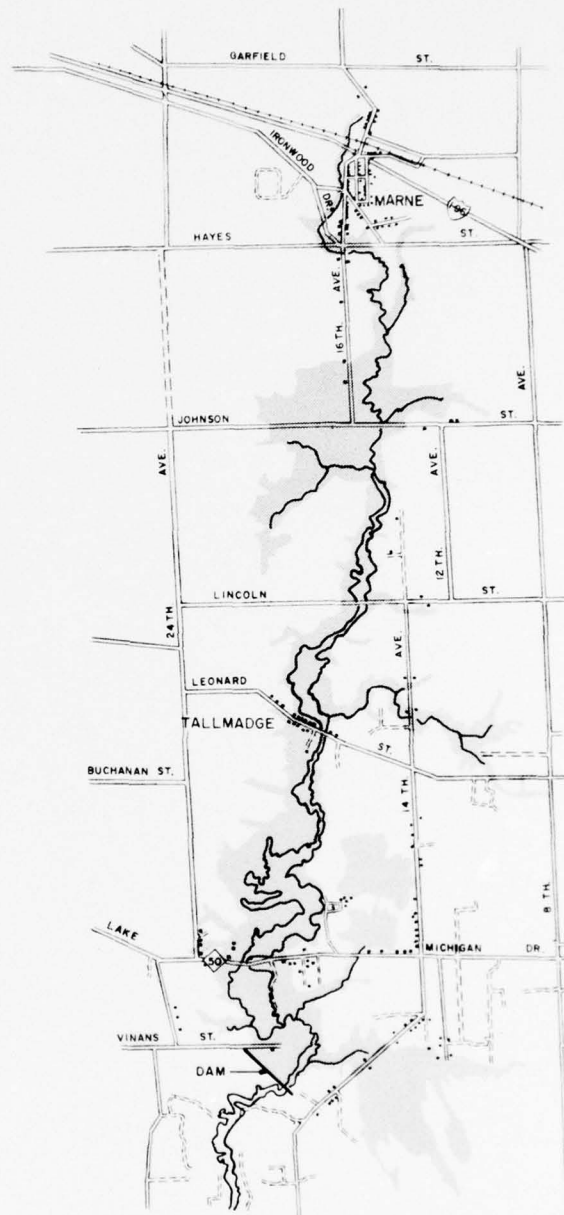
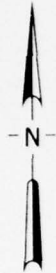
GRAND RIVER BASIN, MICHIGAN

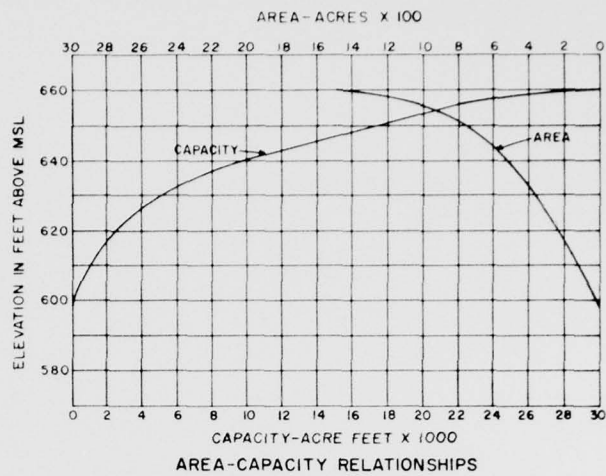
SITE NO. 51

PORTLAND RESERVOIR

PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT





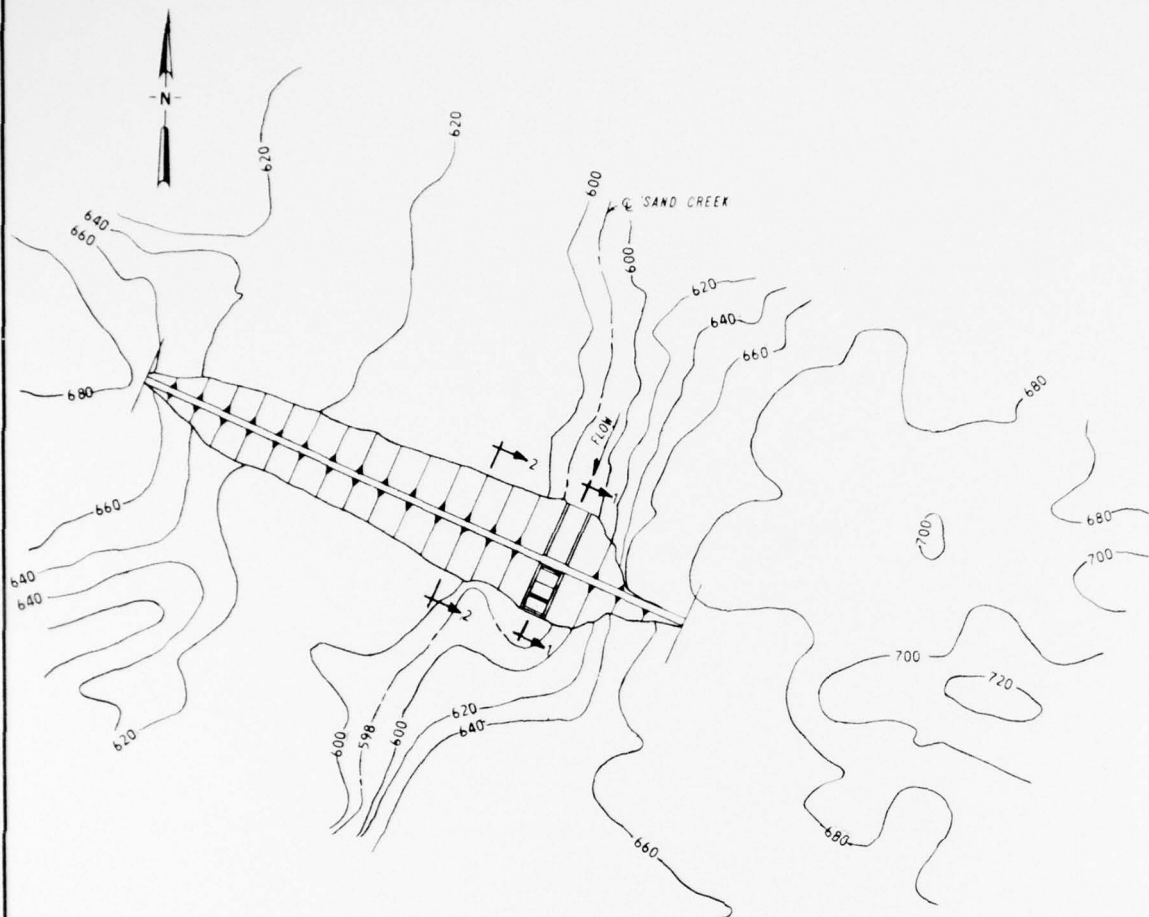
GRAND RIVER BASIN, MICHIGAN

SITE NO. 74

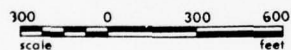
SAND CREEK RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-49



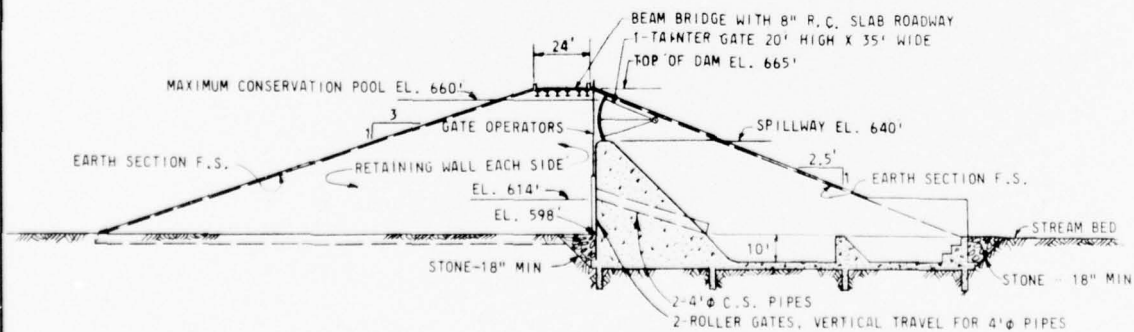
PLAN OF DAM



ORIGINAL GROUND SURFACE

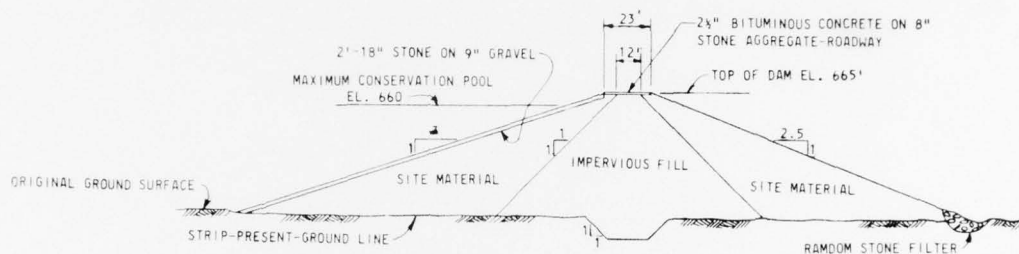
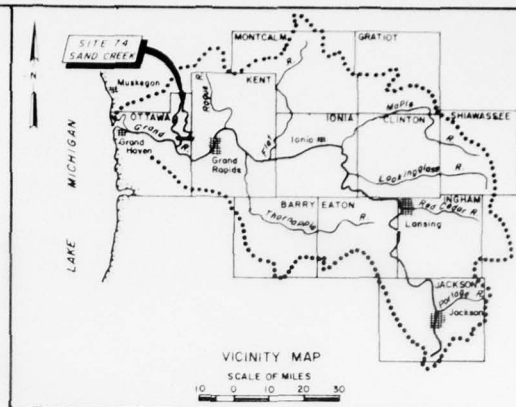
STRIP-PR

EARTH



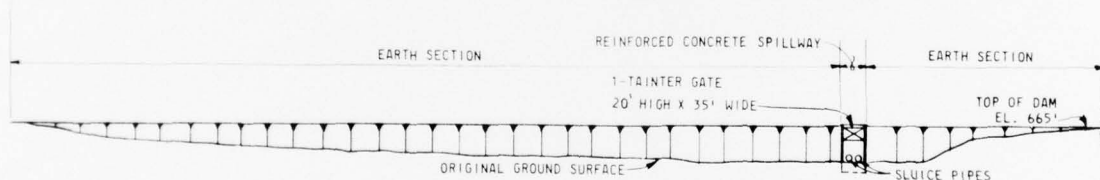
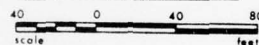
SECTIONAL ELEVATION I-I



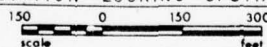


SECTION 2-2

TYPICAL EARTH SECTION



ELEVATION LOOKING UPSTREAM



GRAND RIVER BASIN, MICHIGAN
SITE NO. 74
SAND CREEK RESERVOIR

PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT

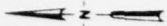
PLATE Q-50

ROADWAY
WIDE

TH SECTION F.S.

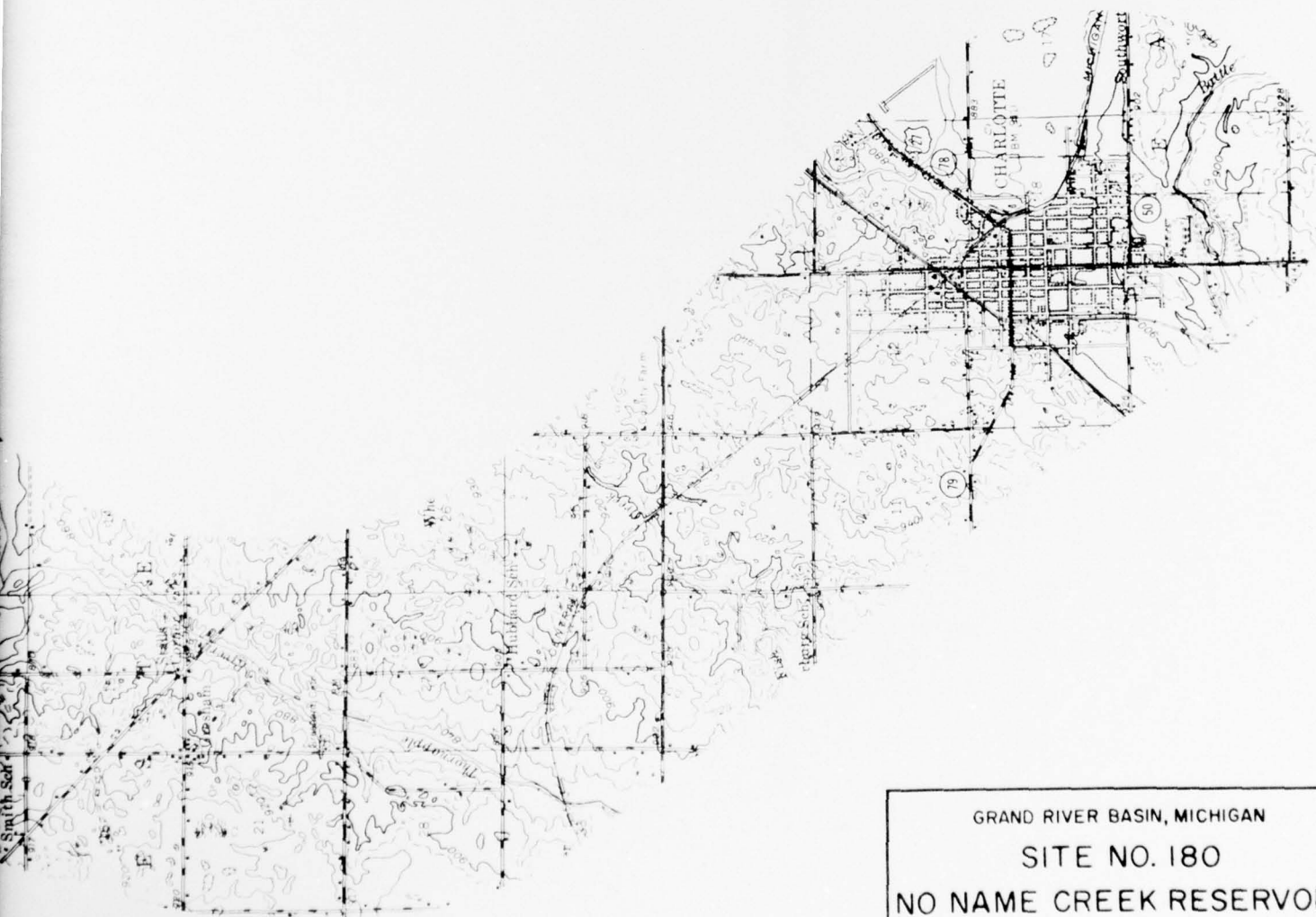
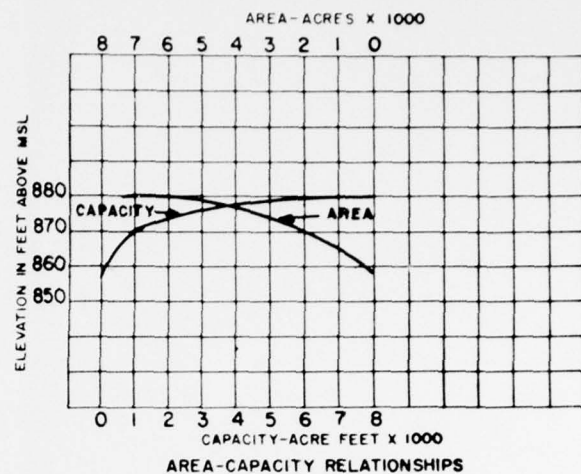
STREAM BED
STONE - 18" MIN
RAVEL FOR 4" & PIPES

AREA - ACRES X 1000



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



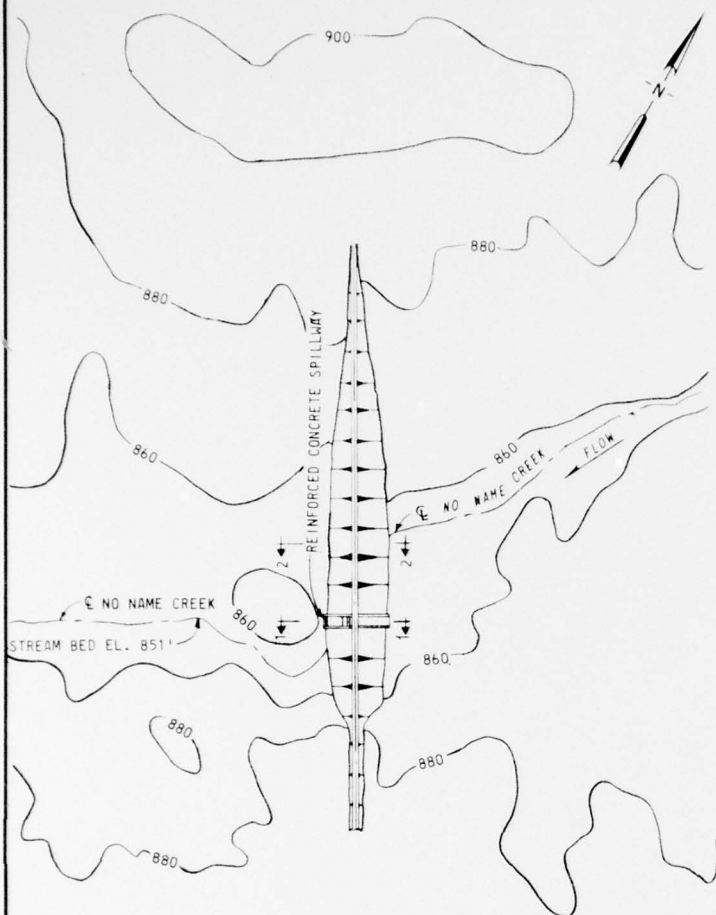


GRAND RIVER BASIN, MICHIGAN

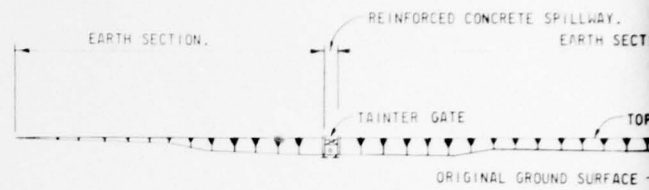
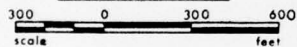
SITE NO. 180

NO NAME CREEK RESERVOIR

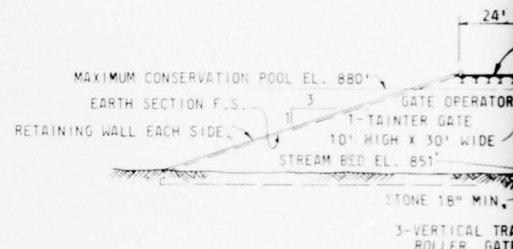
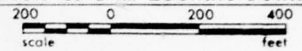
U.S. ARMY ENGINEER DISTRICT, DETROIT



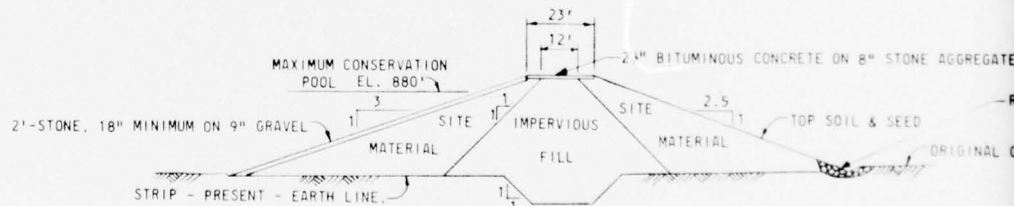
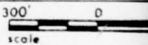
PLAN OF DAM



ELEVATION OF DAM LOOKING DOWNSTREAM

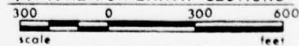


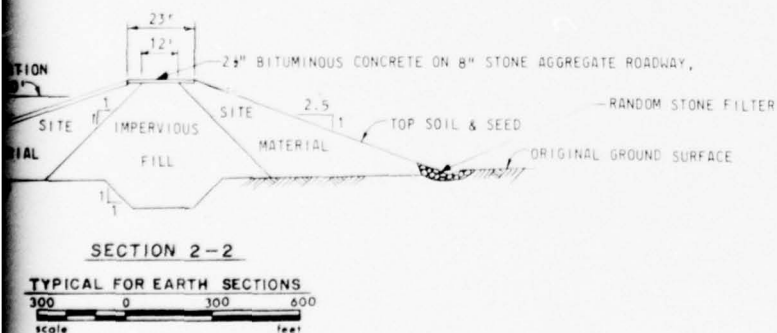
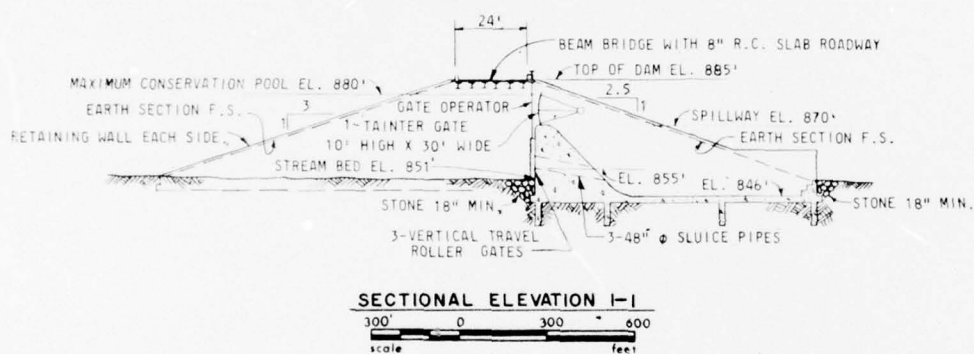
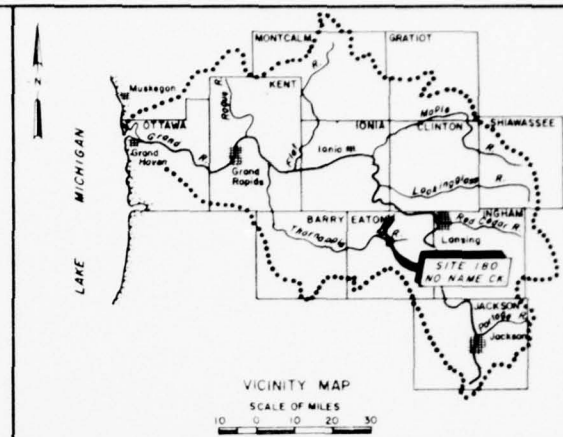
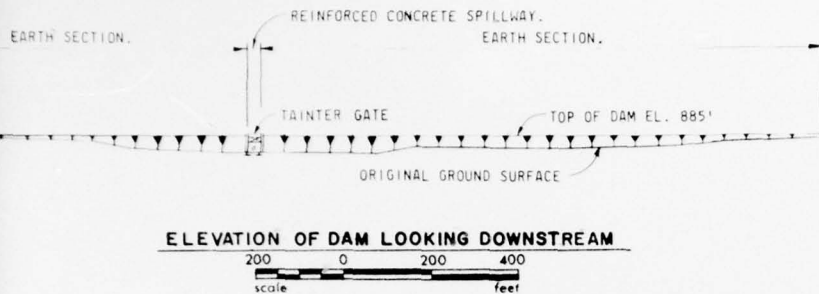
SECTIONAL ELEVATION



SECTION 2-2

TYPICAL FOR EARTH SECTIONS





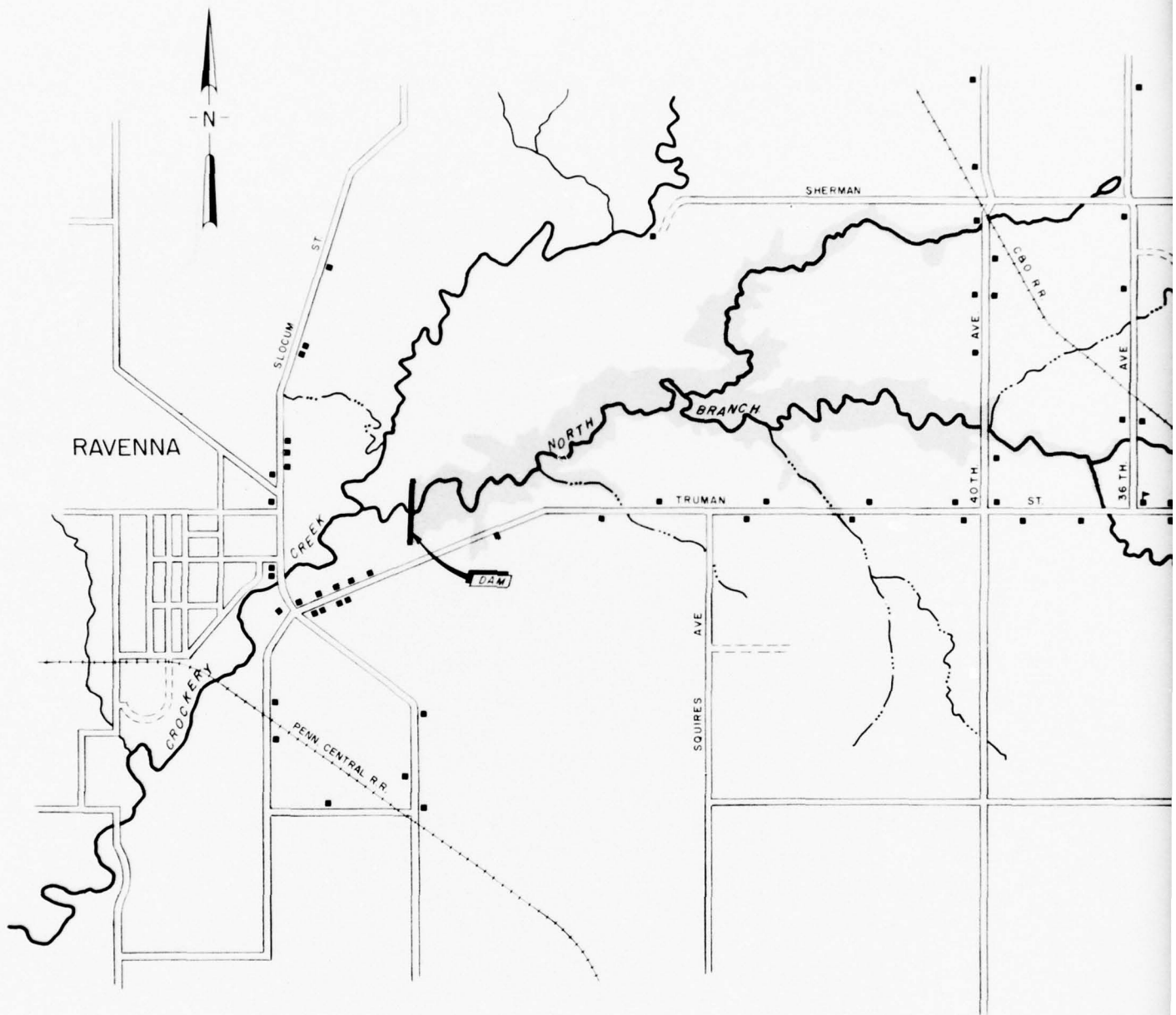
GRAND RIVER BASIN, MICHIGAN

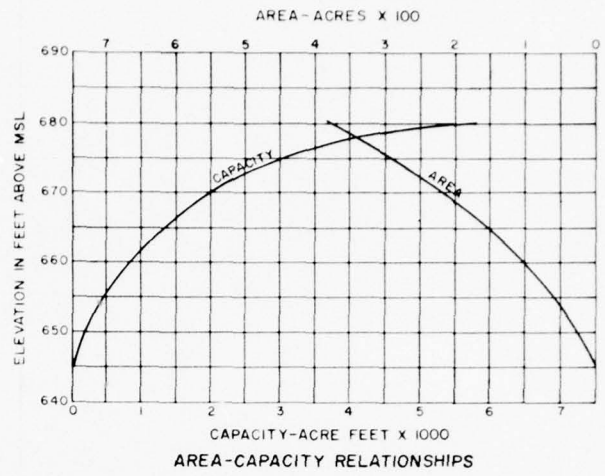
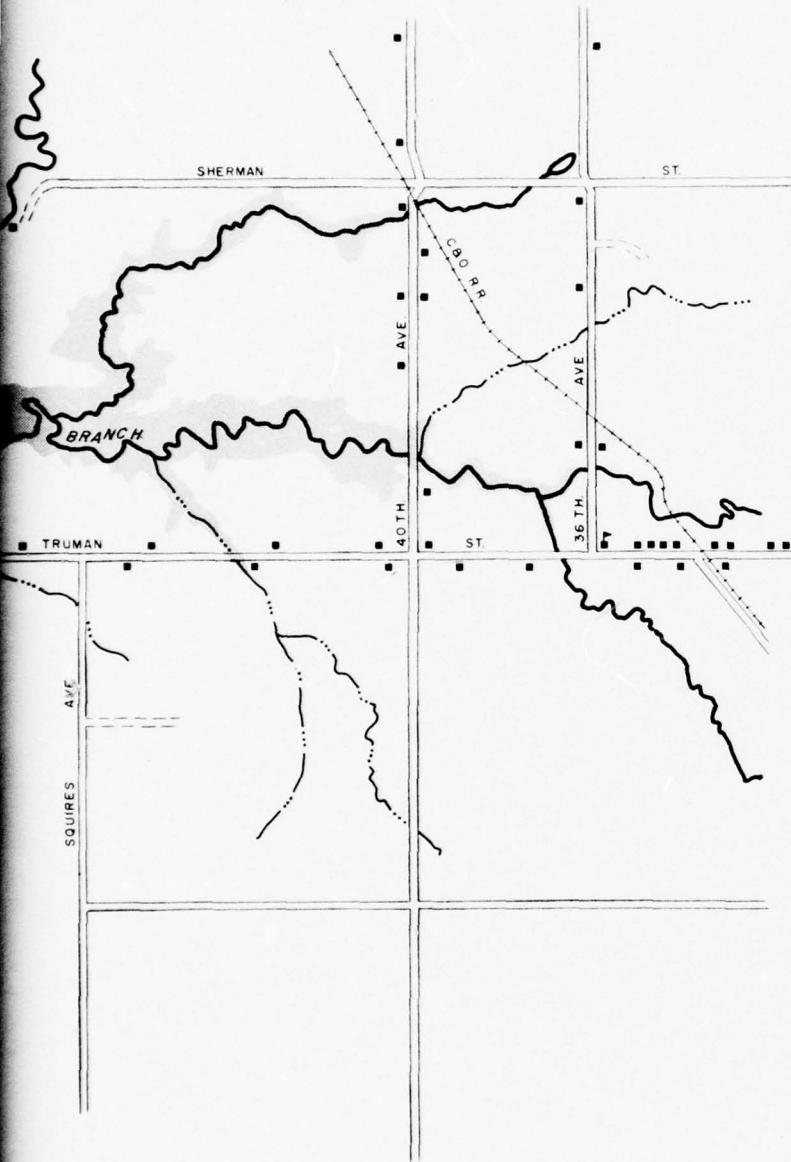
SITE NO. 180

NO NAME CREEK RESERVOIR

PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT

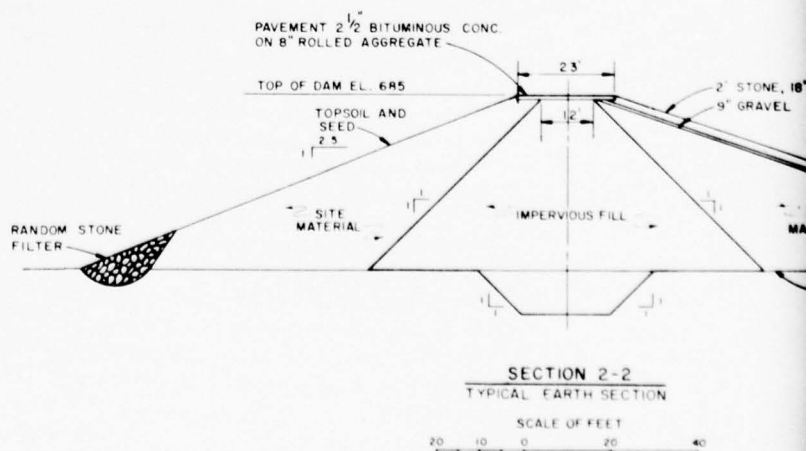
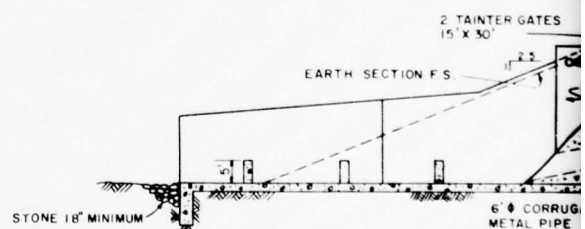
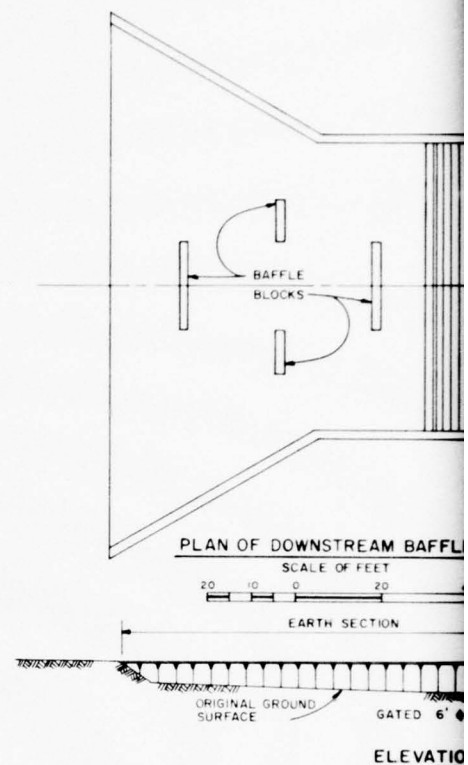
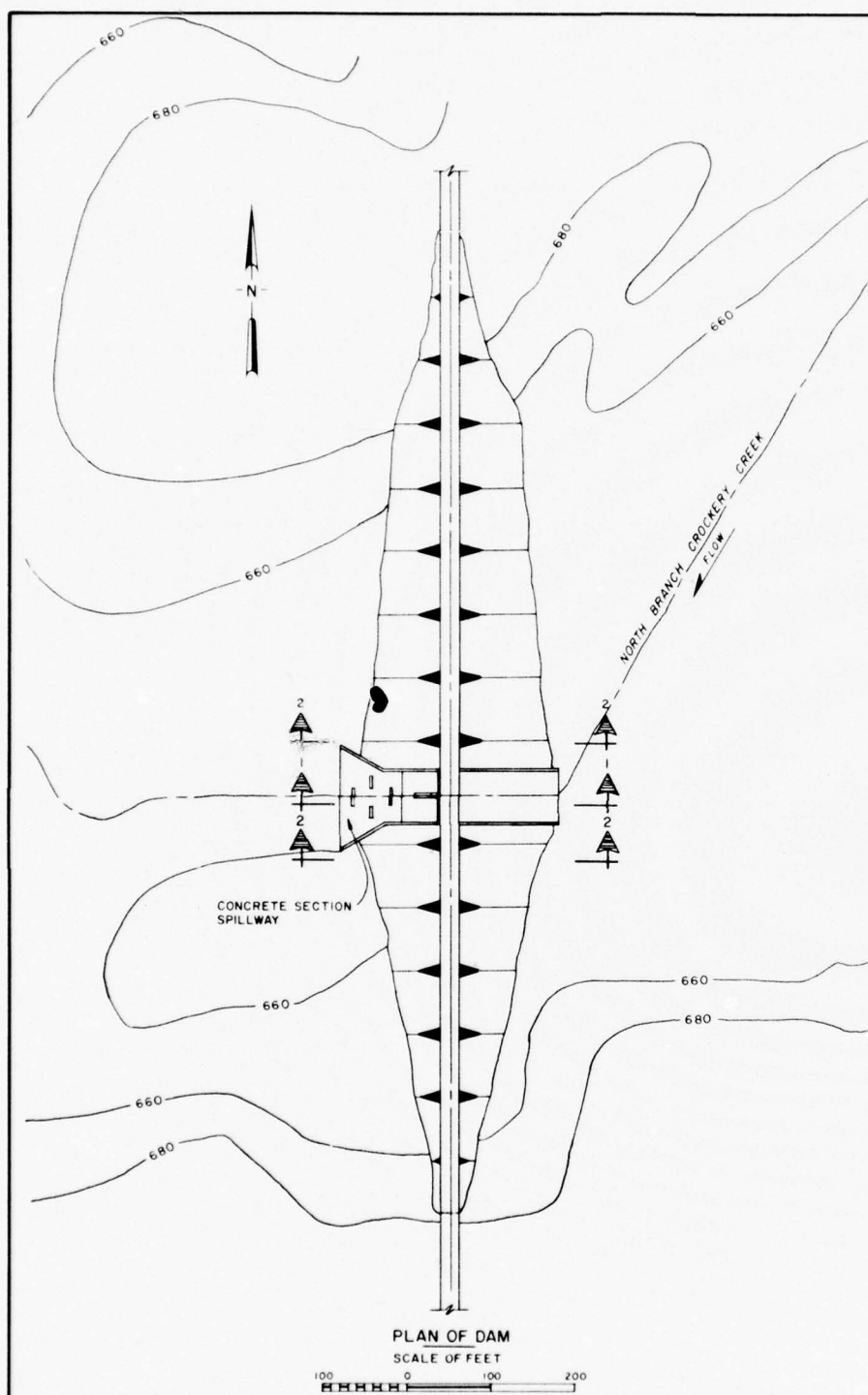


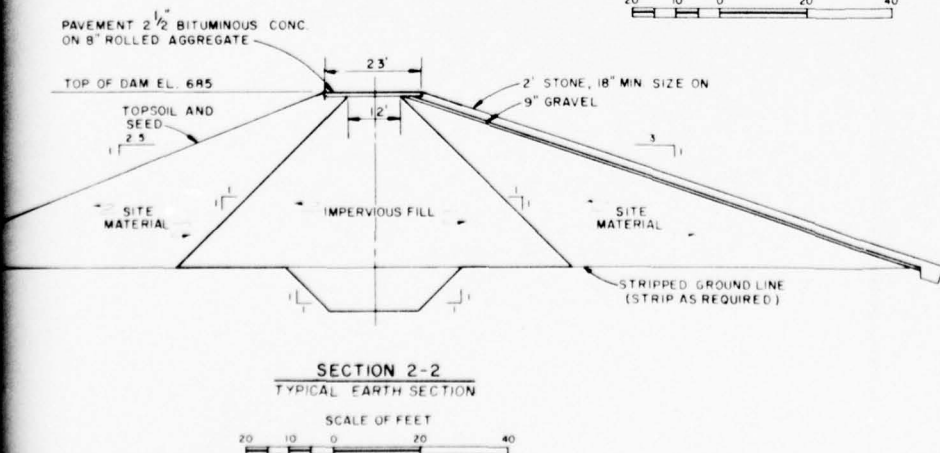
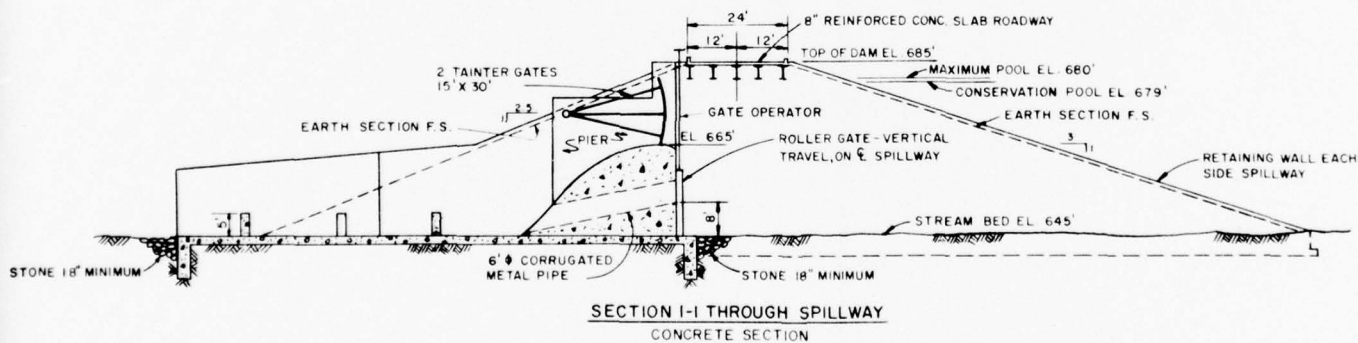
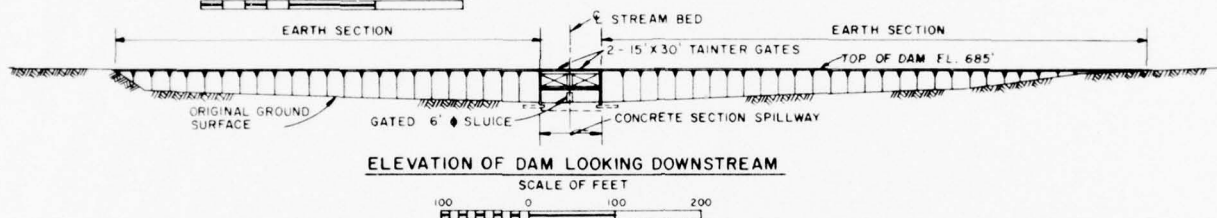
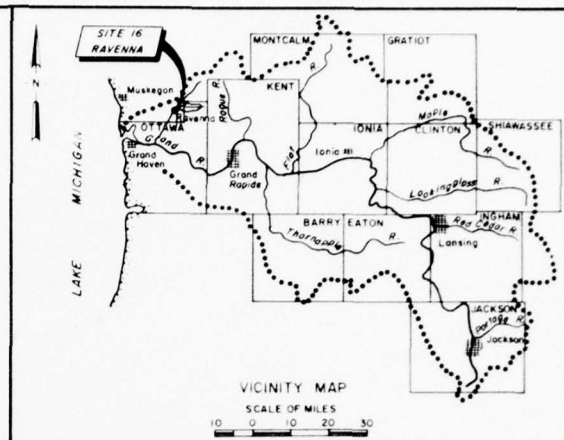
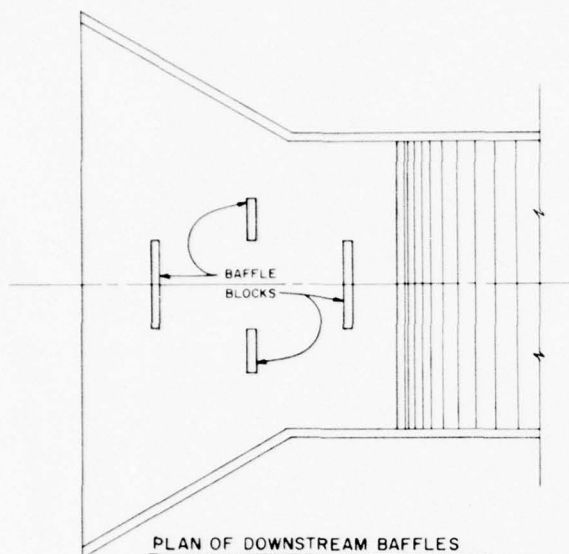


GRAND RIVER BASIN, MICHIGAN

SITE NO. 16
RAVENNA RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT





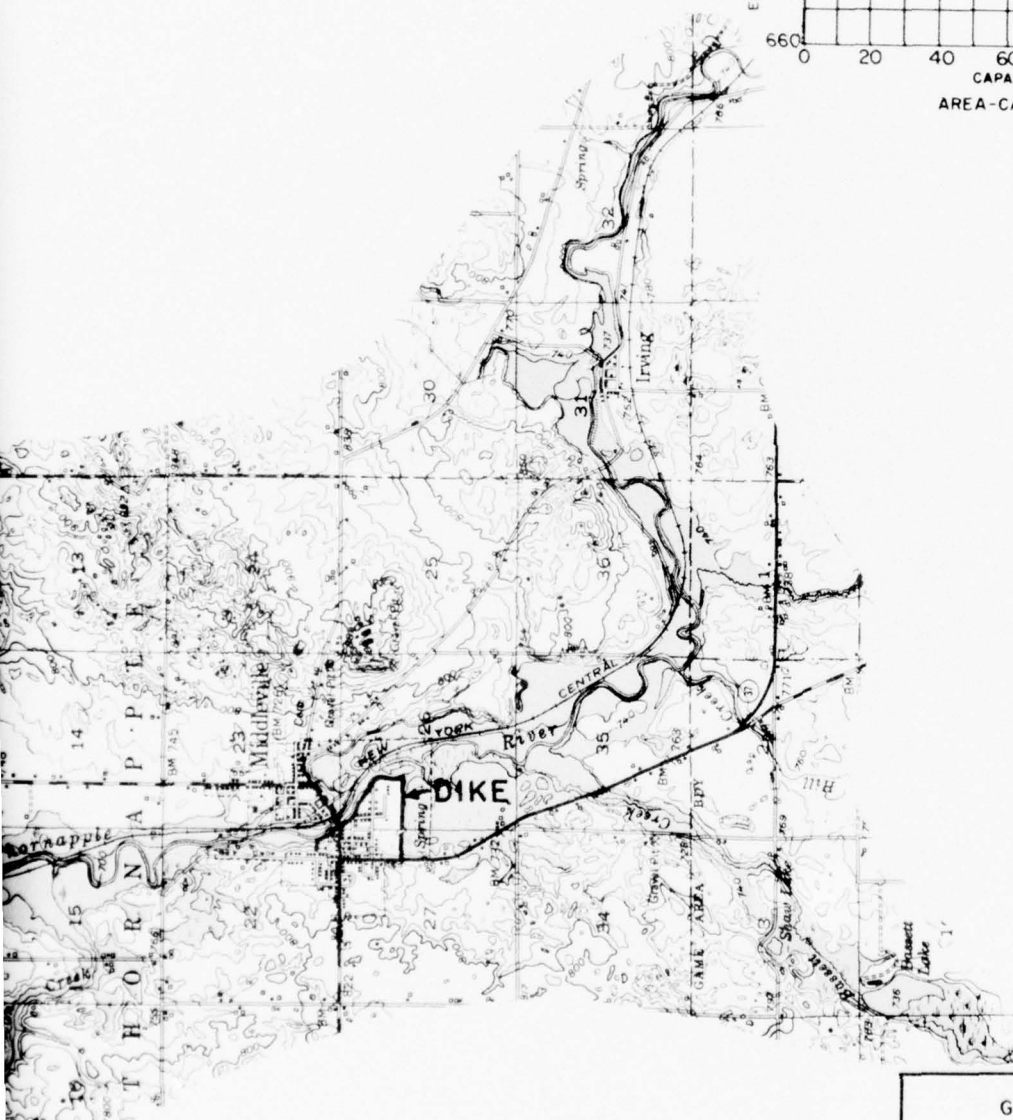
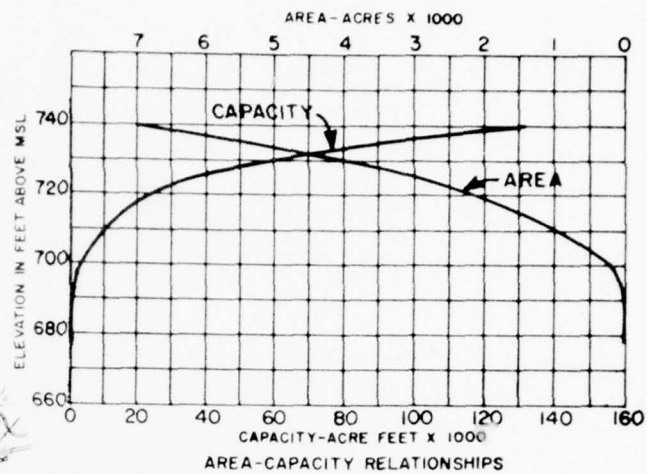
GRAND RIVER BASIN, MICHIGAN

SITE NO. 16

RAVENNA RESERVOIR

PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT



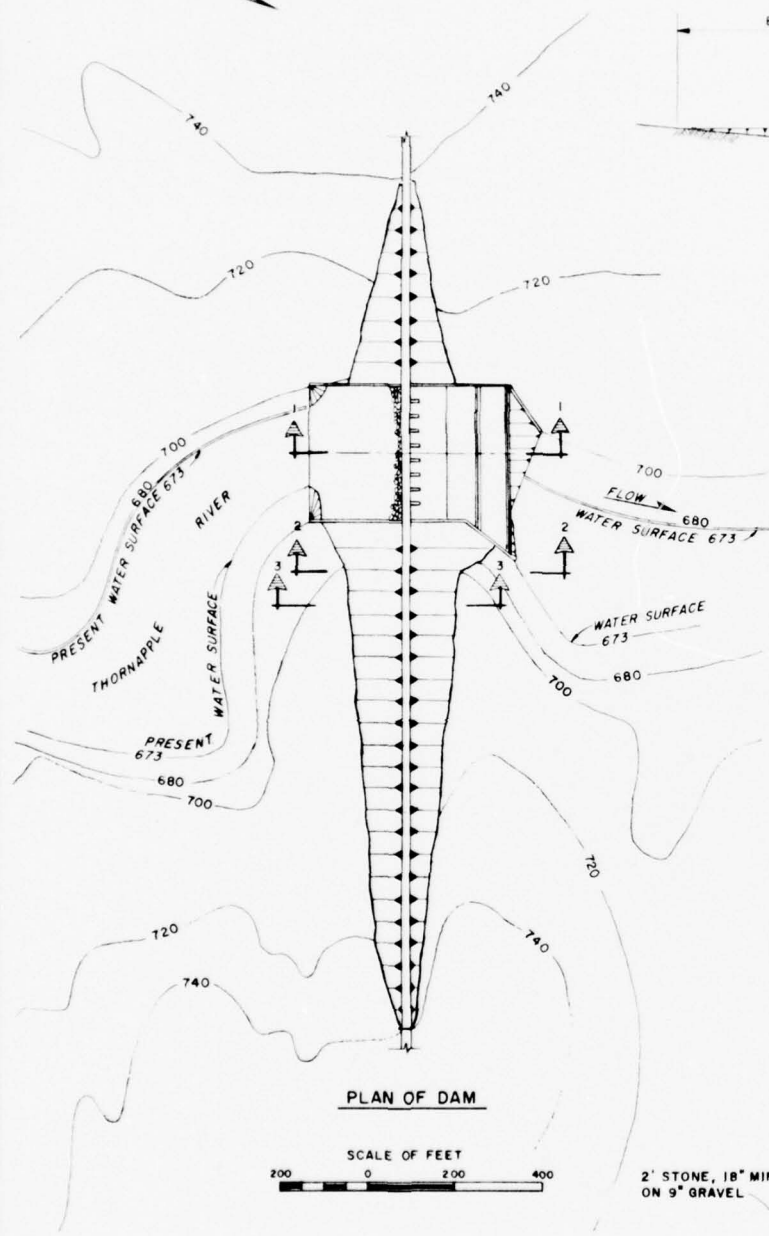
SCALE OF FEET



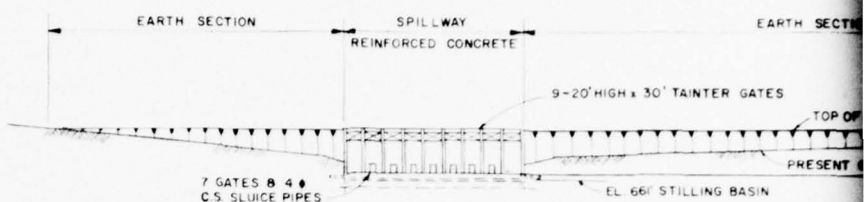
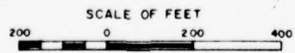
GRAND RIVER BASIN, MICHIGAN
 SITE NO. 22
 LABARGE RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT

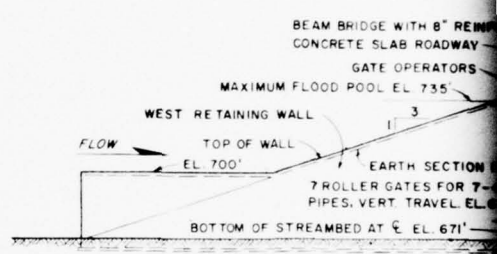
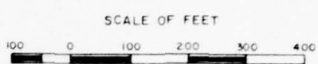
PLATE Q-55



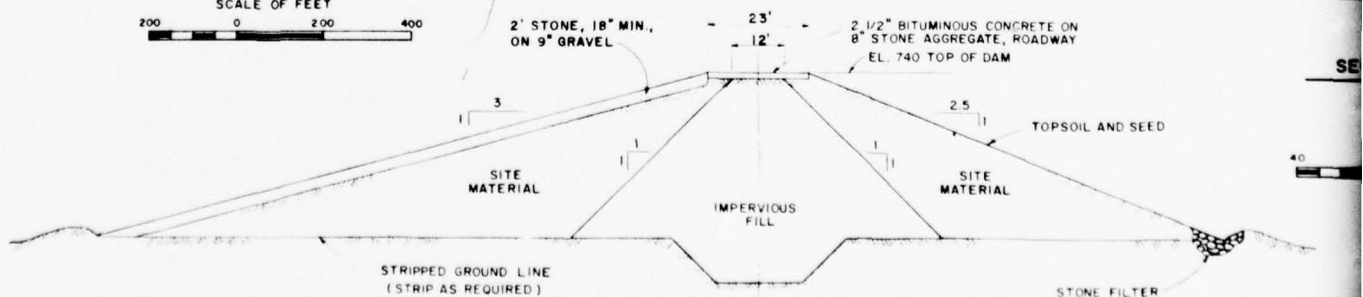
PLAN OF DAM



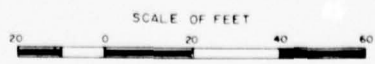
ELEVATION LOOKING DOWNSTREAM

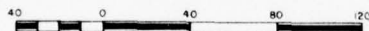
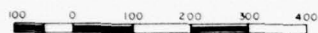


SECTION

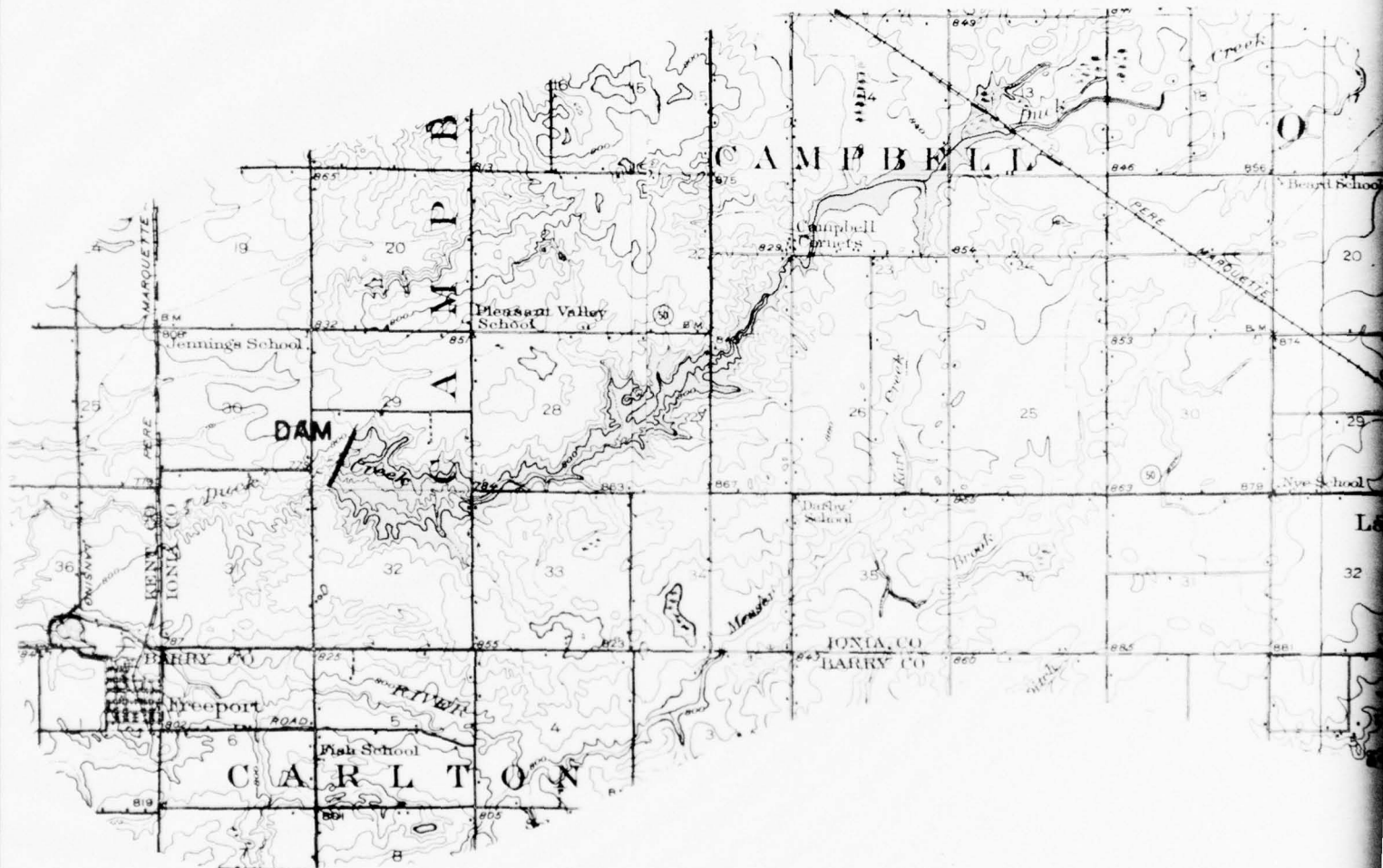
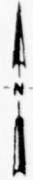


TYPICAL EARTH SECTION 3-3





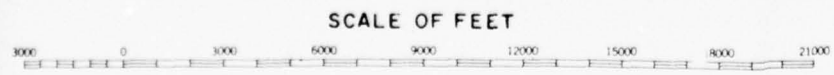
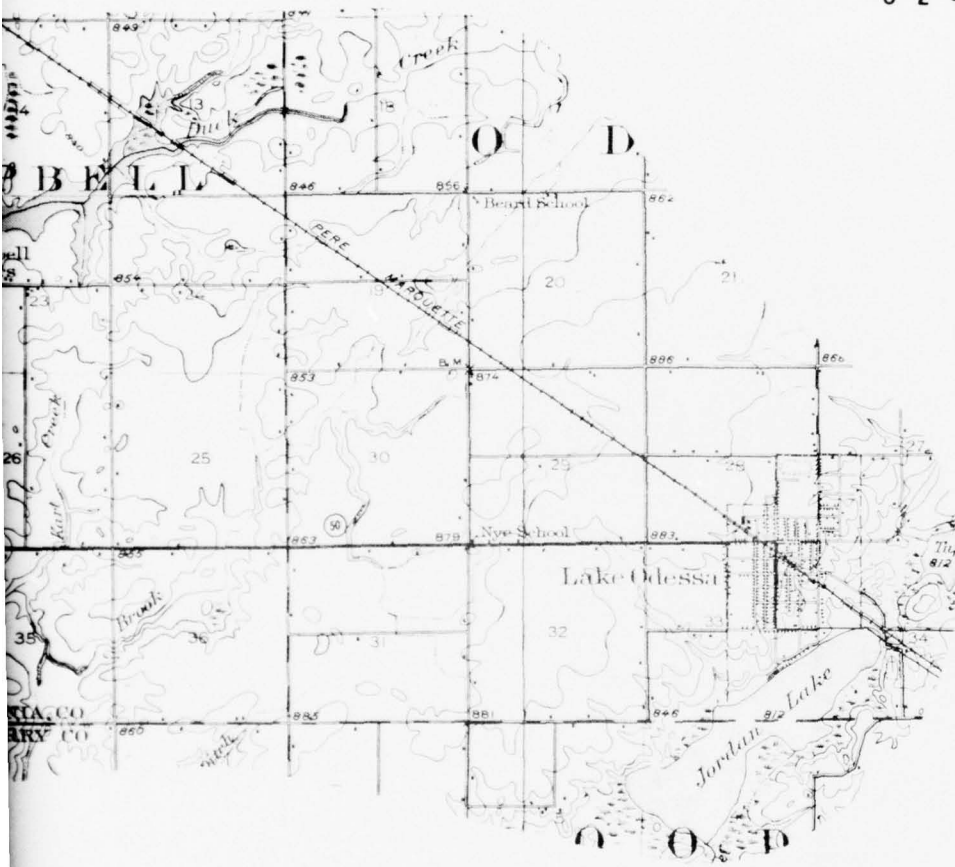
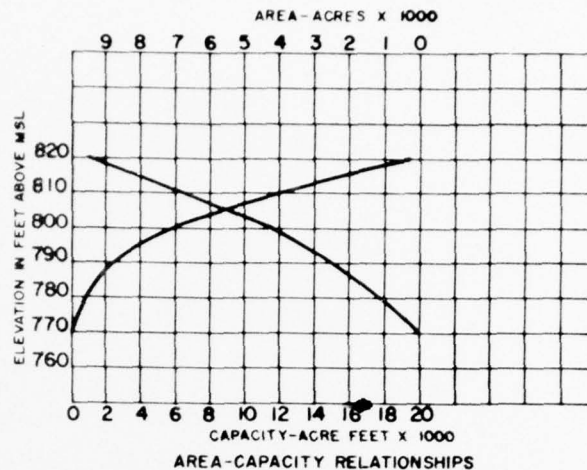
U.S. ARMY ENGINEER DISTRICT, DETROIT



SCALE OF FEET



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES

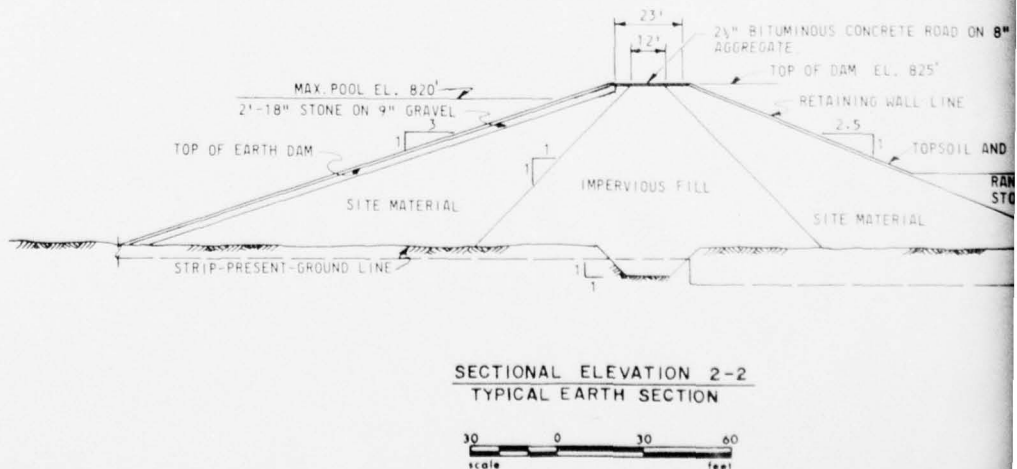
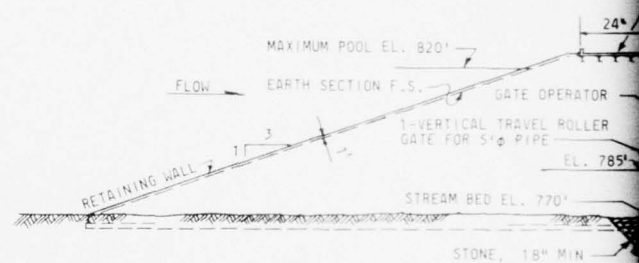
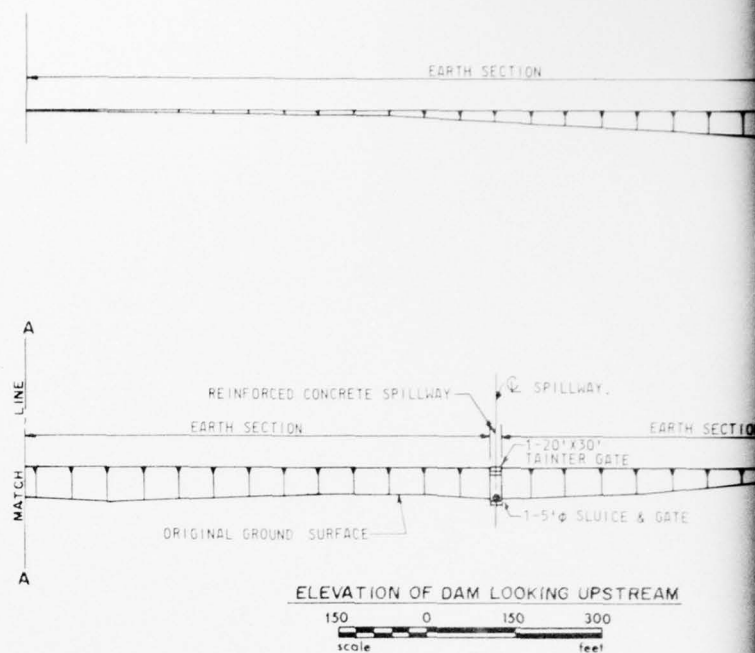
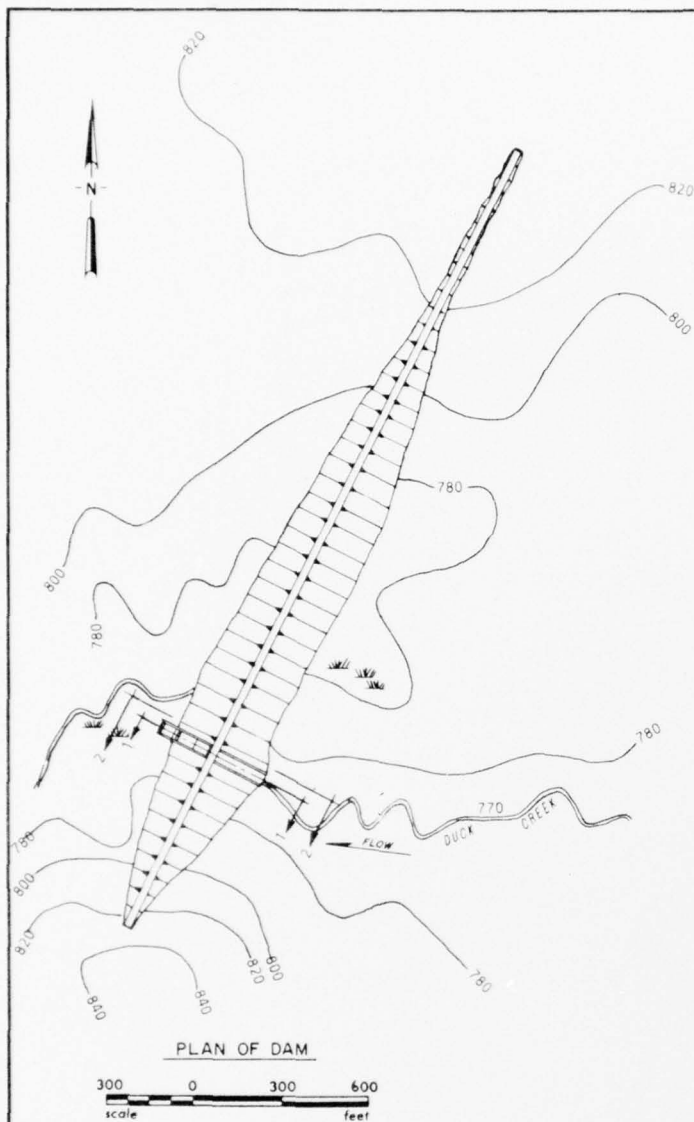


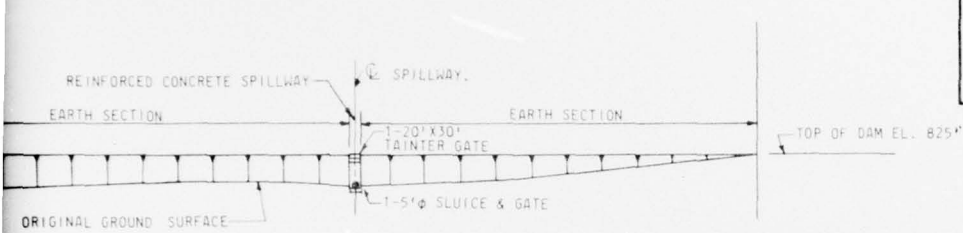
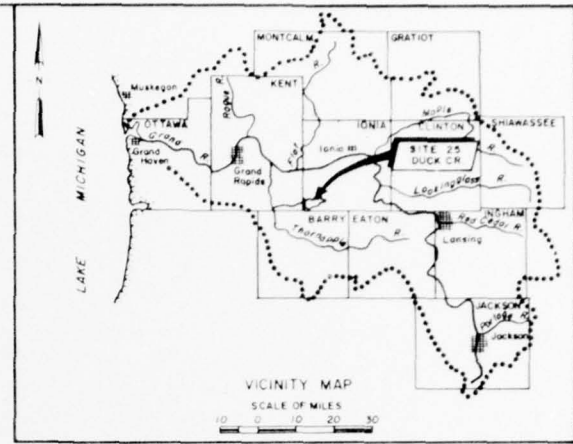
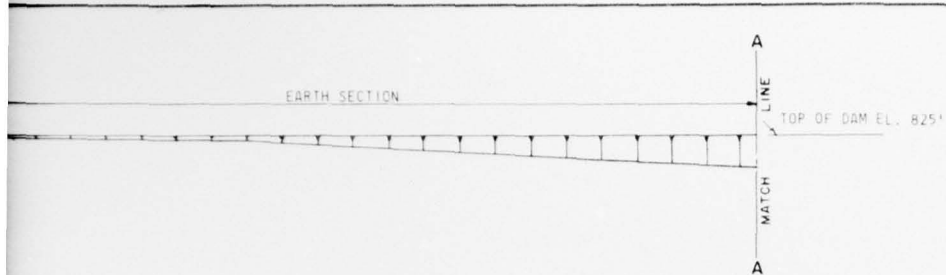
GRAND RIVER BASIN, MICHIGAN

SITE NO. 25

DUCK CREEK RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT

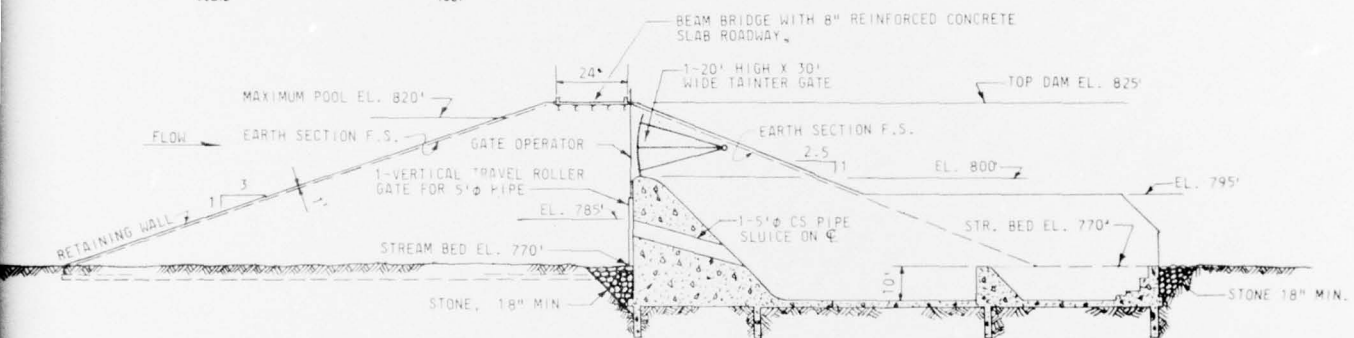




ELEVATION OF DAM LOOKING UPSTREAM

150 0 150 300

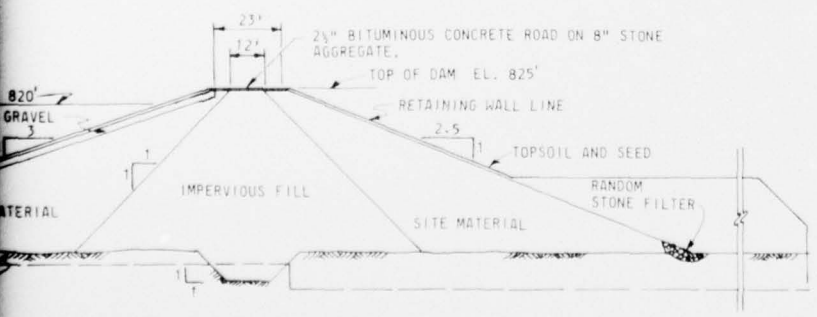
scale feet



SECTIONAL ELEVATION 1-1

30 0 30 60

scale feet



SECTIONAL ELEVATION 2-2

TYPICAL EARTH SECTION

30 0 30 60

scale feet

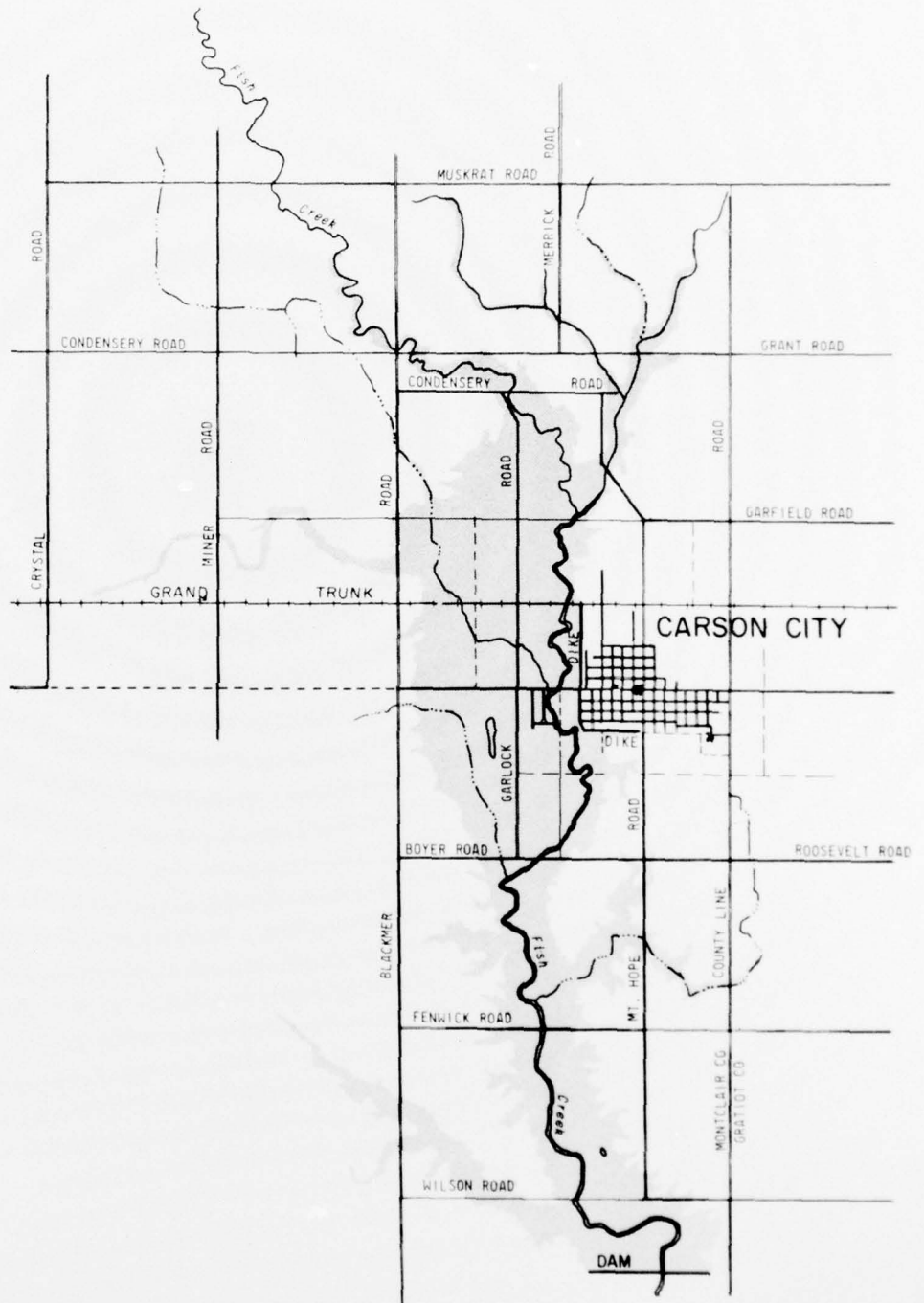
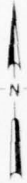
GRAND RIVER BASIN, MICHIGAN

SITE NO. 25

DUCK CREEK RESERVOIR

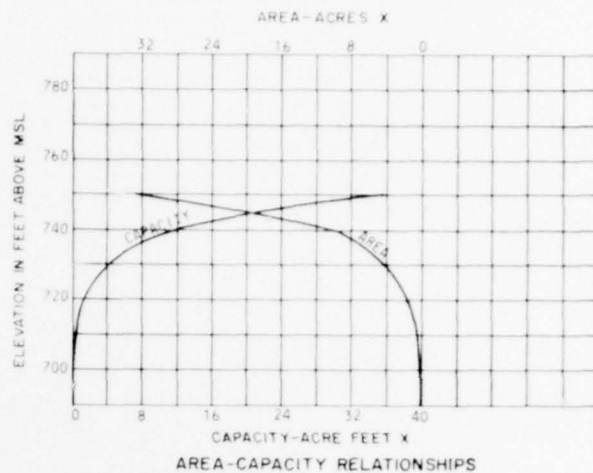
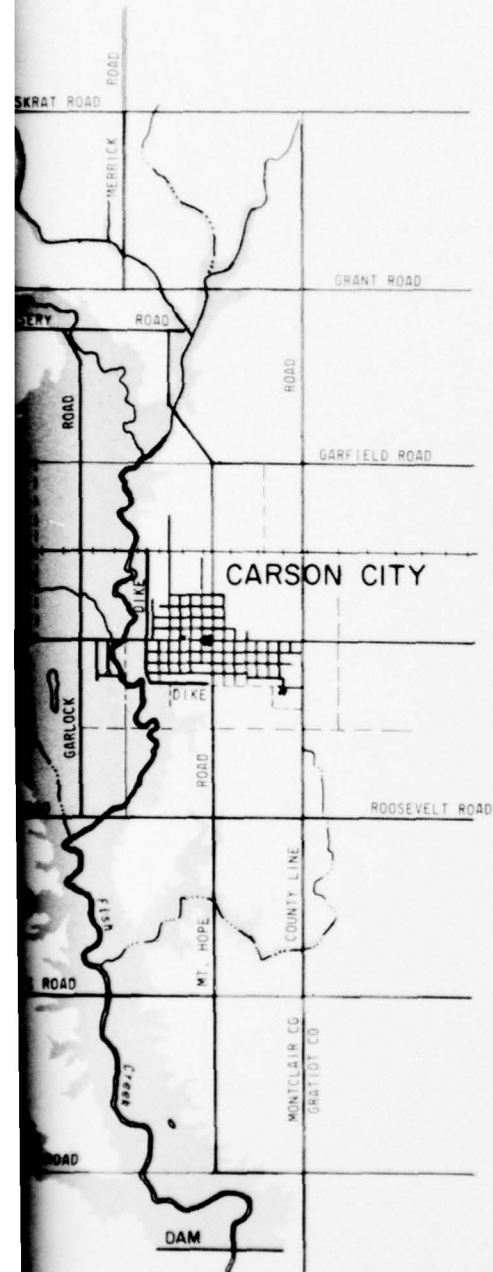
PLAN AND SECTIONS OF DAM

U.S. ARMY ENGINEER DISTRICT, DETROIT



SCALE OF MILES



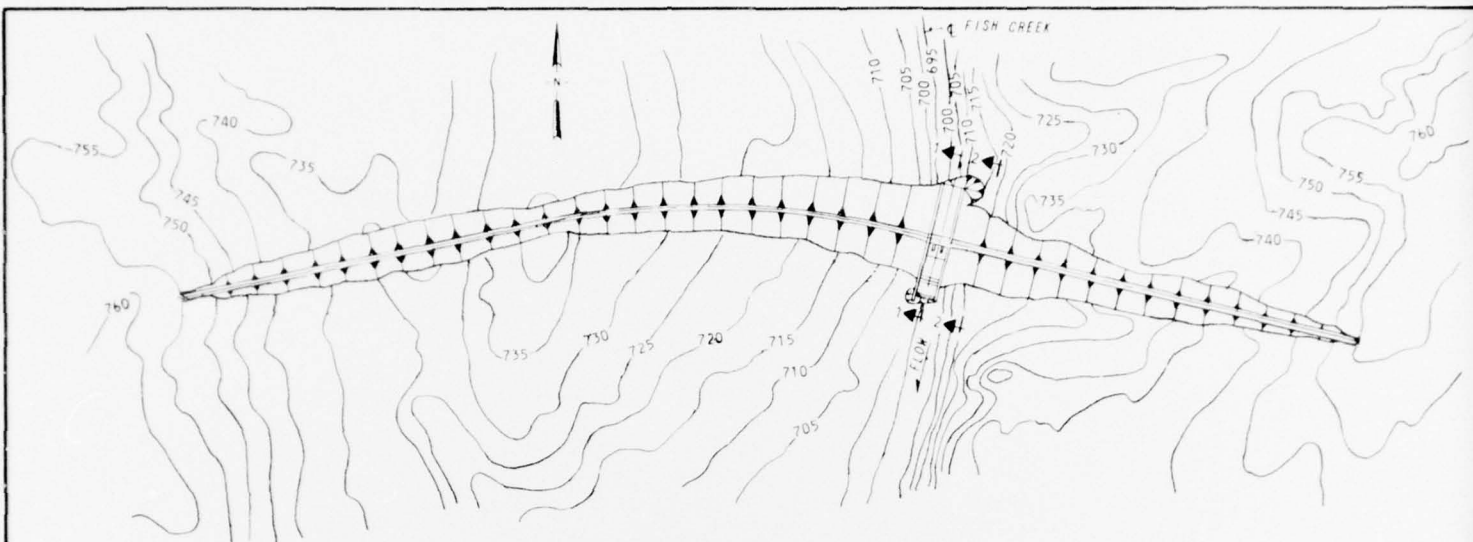


GRAND RIVER BASIN, MICHIGAN

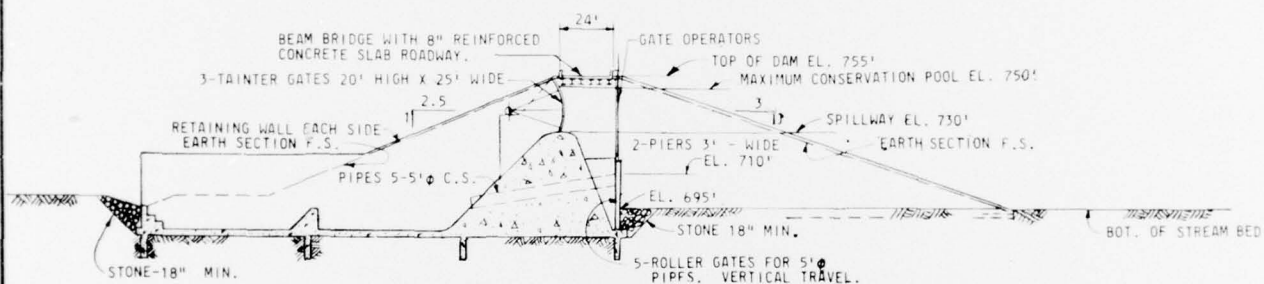
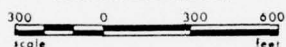
SITE NO. 47A

FISH CREEK RESERVOIR

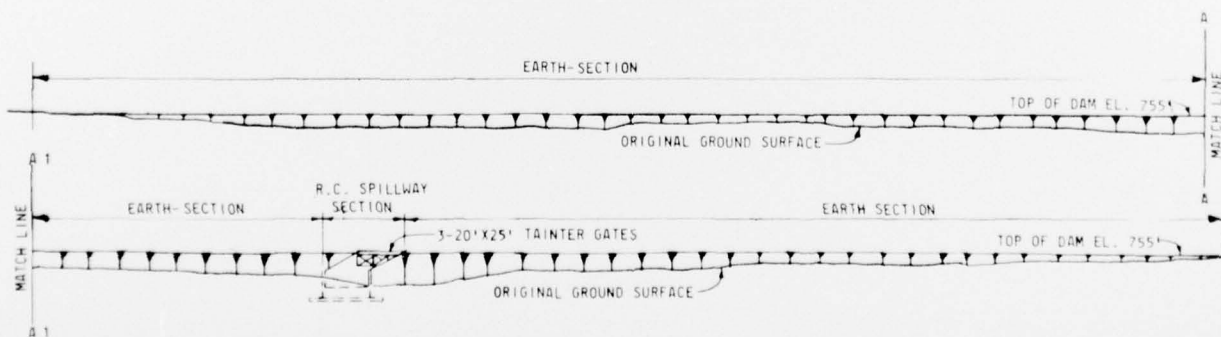
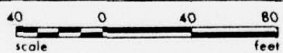
U.S. ARMY ENGINEER DISTRICT, DETROIT



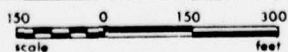
PLAN OF DAM

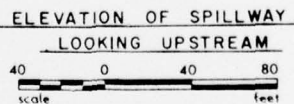
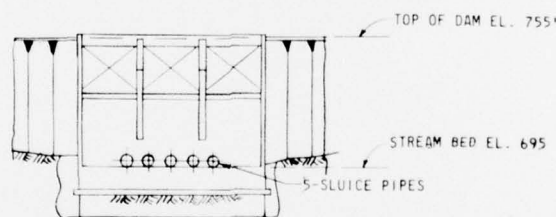
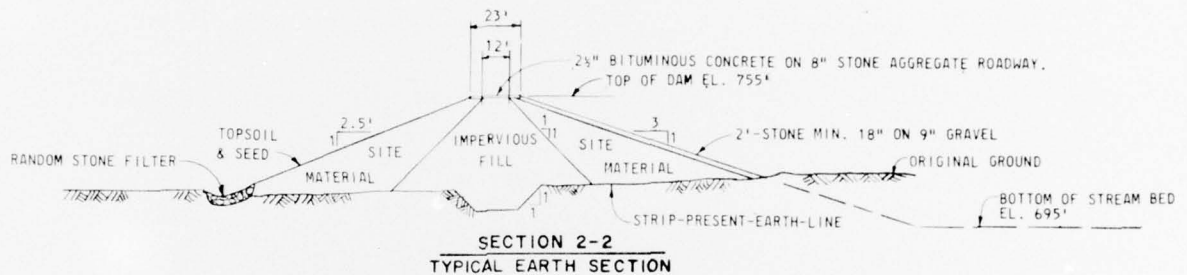
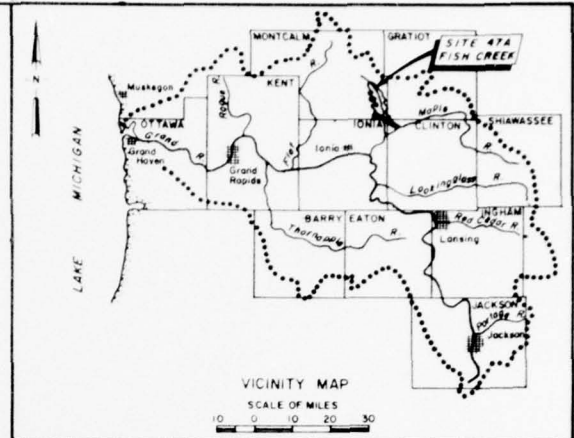
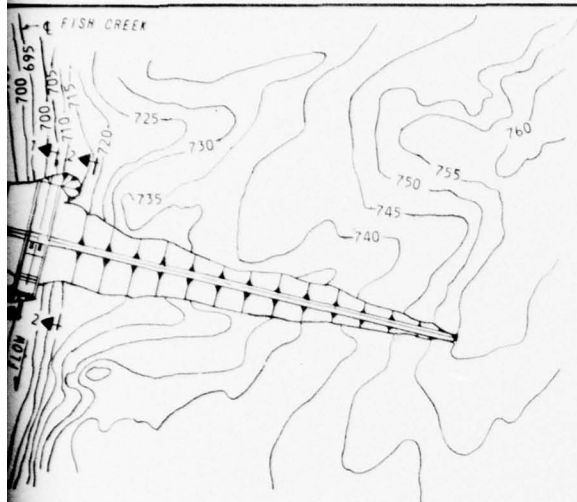


SECTIONAL ELEVATION I-I



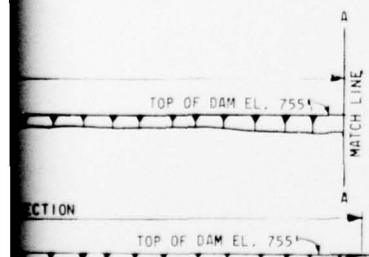
ELEVATION OF DAM LOOKING NORTH





POOL EL. 750'
L. 730'
M-SECTION F.S.

BOT. OF STREAM BED



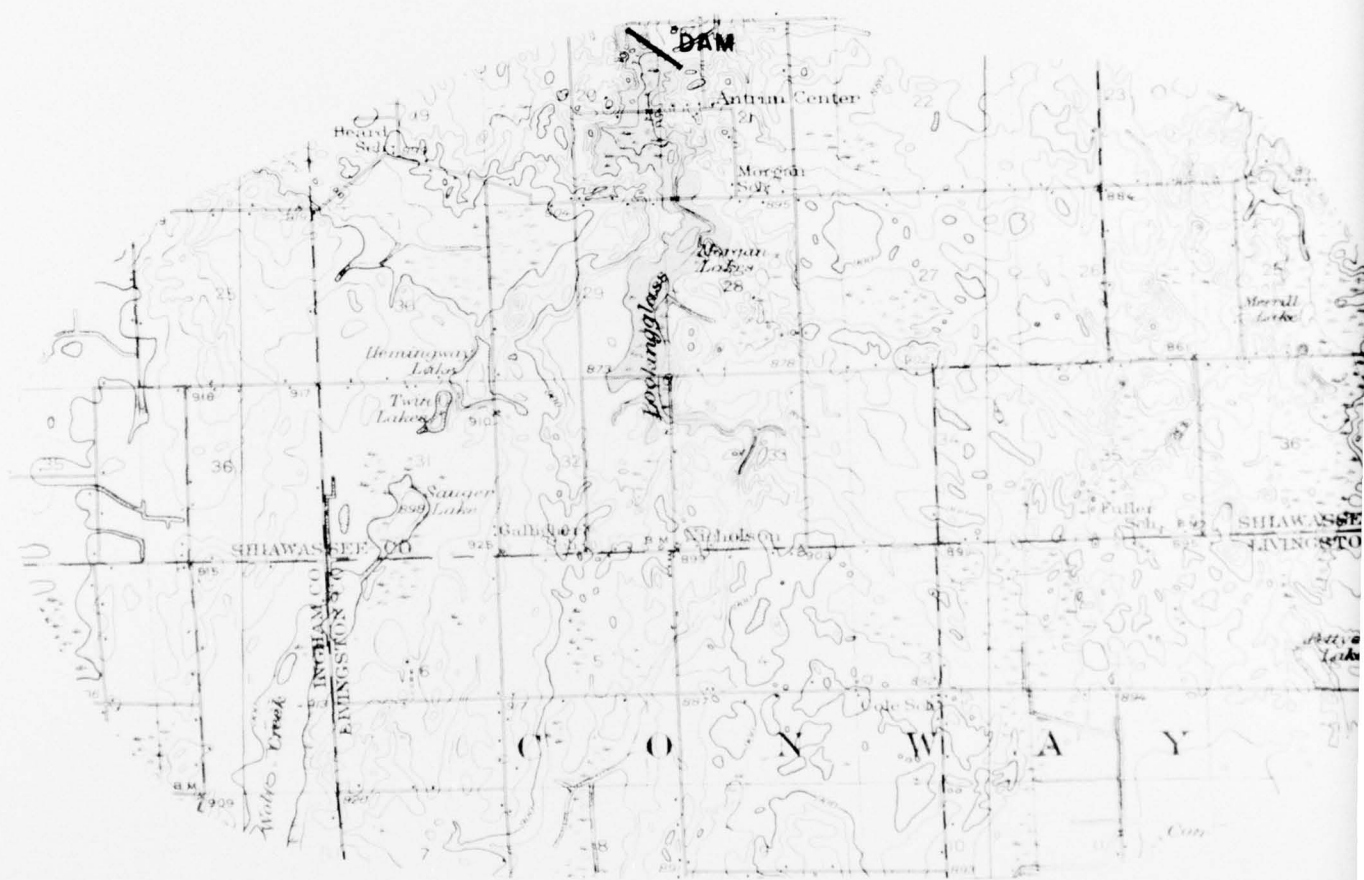
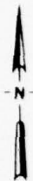
GRAND RIVER BASIN, MICHIGAN

SITE NO. 47A

FISH CREEK RESERVOIR

PLAN AND SECTIONS OF DAM

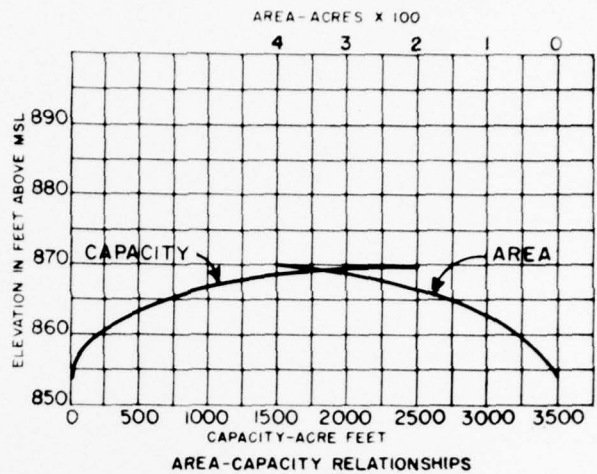
U.S. ARMY ENGINEER DISTRICT, DETROIT



SCALE OF FEET



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



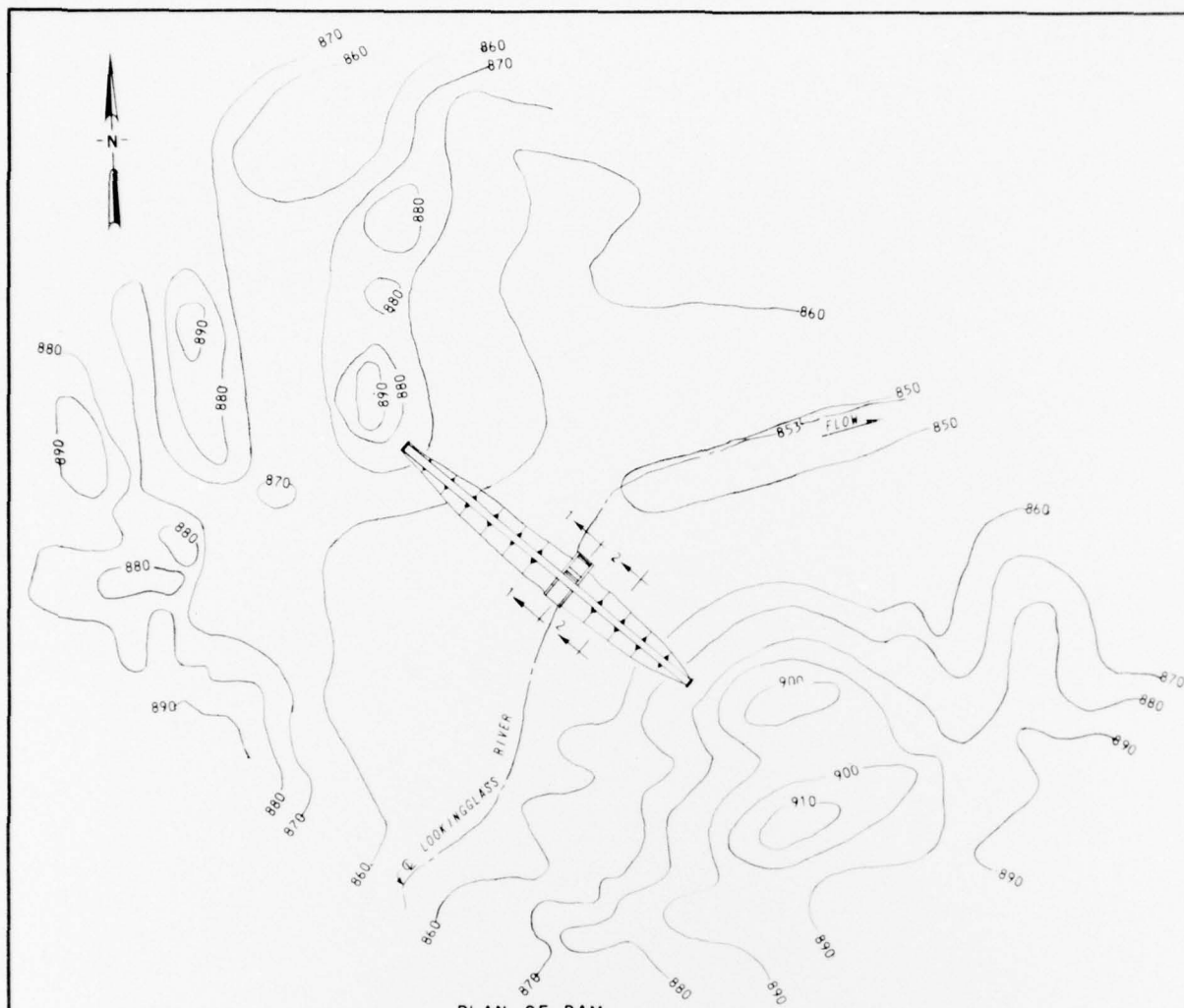
SCALE OF FEET



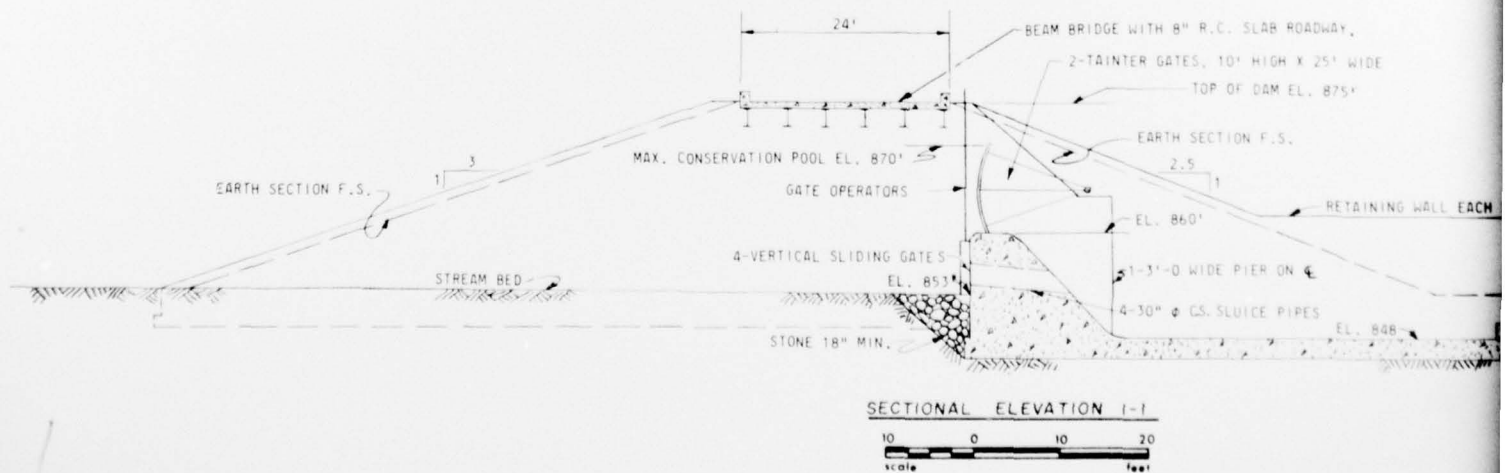
GRAND RIVER BASIN, MICHIGAN

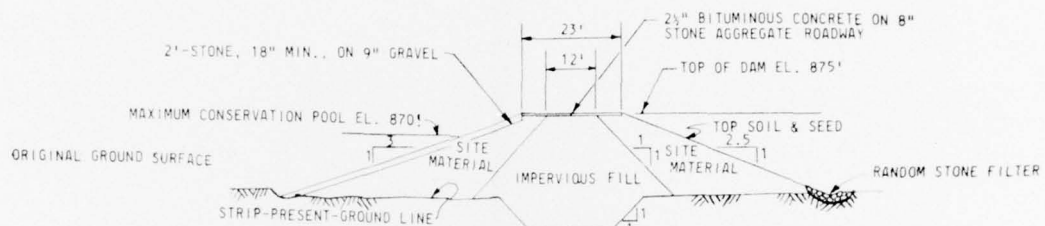
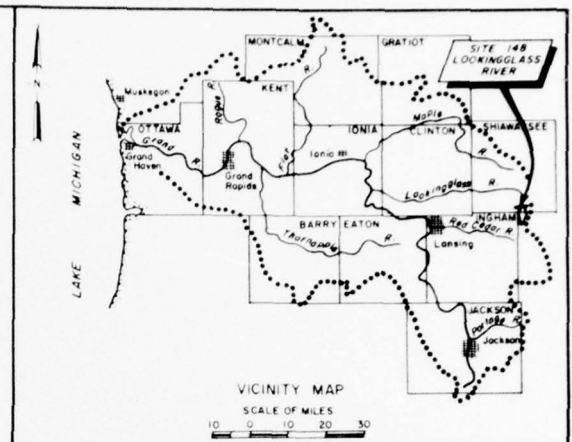
SITE NO. 148
LOOKINGGLASS RIVER
RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT



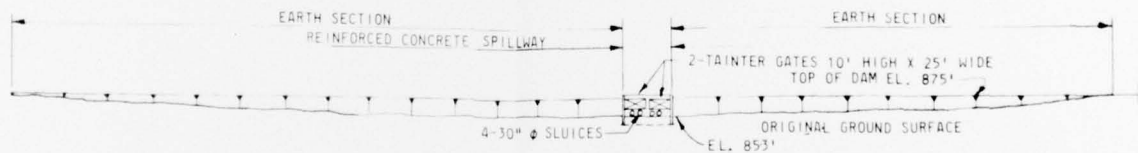
2'-STONE, 11
MAXIMUM CONSERV
ORIGINAL GROUND SURFACE
STRIP



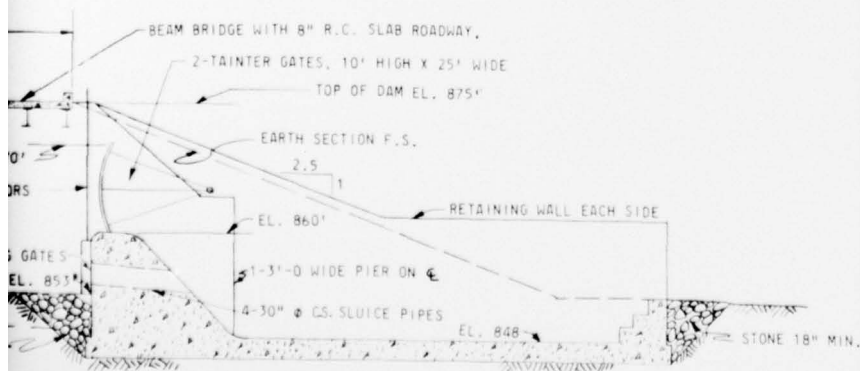


SECTION 2-2
TYPICAL EARTH SECTION

20 0 20 40
scale feet



ELEVATION OF DAM LOOKING DOWNSTREAM



SECTIONAL ELEVATION 1-1

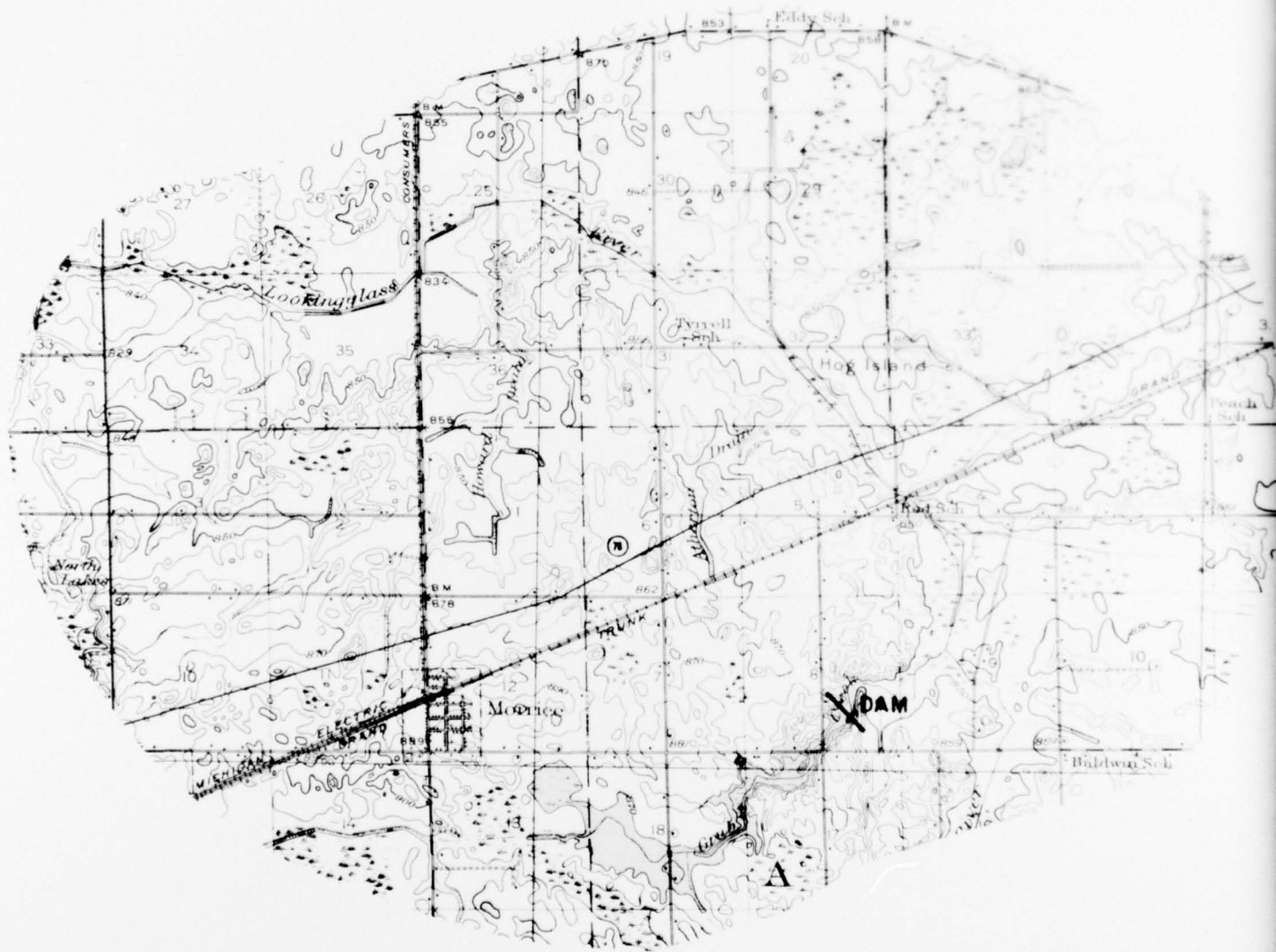
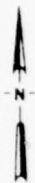
0 10 20

Scale feet

GRAND RIVER BASIN, MICHIGAN
SITE NO 148
LOOKINGGLASS RIVER RESERVOIR

PLAN AND SECTIONS OF DAM

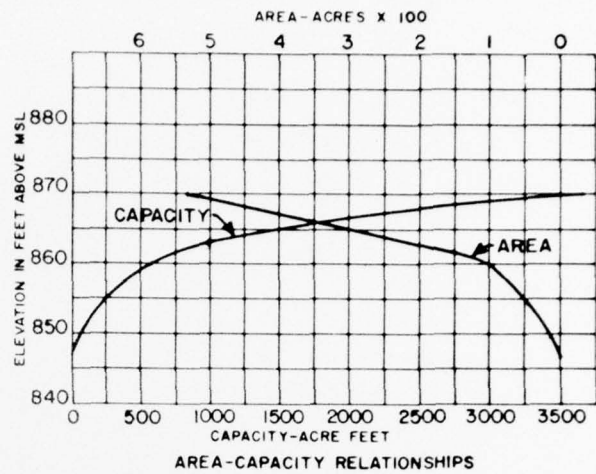
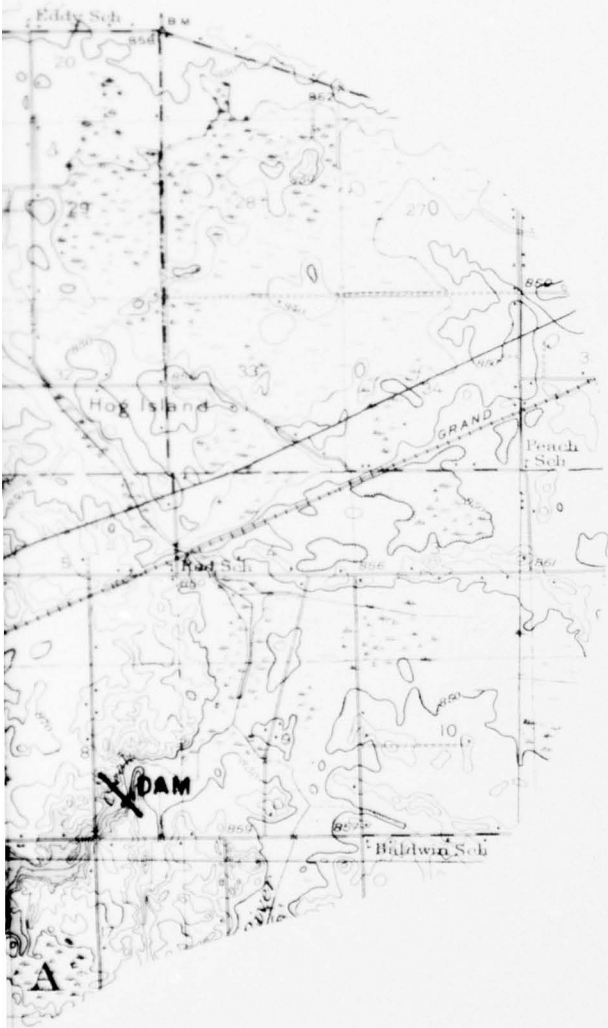
U.S. ARMY ENGINEER DISTRICT, DETROIT



SCALE OF FEET



BASED ON U.S. GEOLOGICAL SURVEY QUADRANGLES



SCALE OF FEET



GRAND RIVER BASIN, MICHIGAN

SITE NO. 149

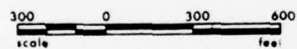
GRUB CREEK RESERVOIR

U.S. ARMY ENGINEER DISTRICT, DETROIT

PLATE Q-63

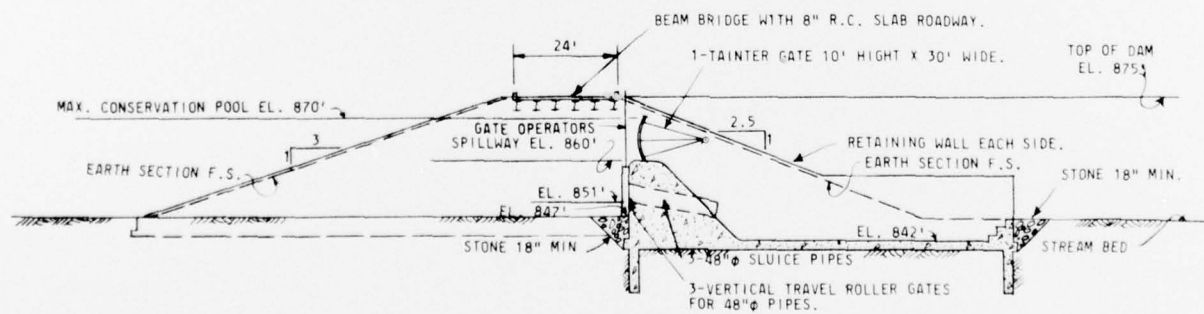


PLAN OF DAM



MAXIMUM CONSERVATION POOL EL. 870'
2' STONE - 18" MINIMUM, ON 9" GRAVEL

STRIP-PRESENT-EA



SECTIONAL ELEVATION I-I

